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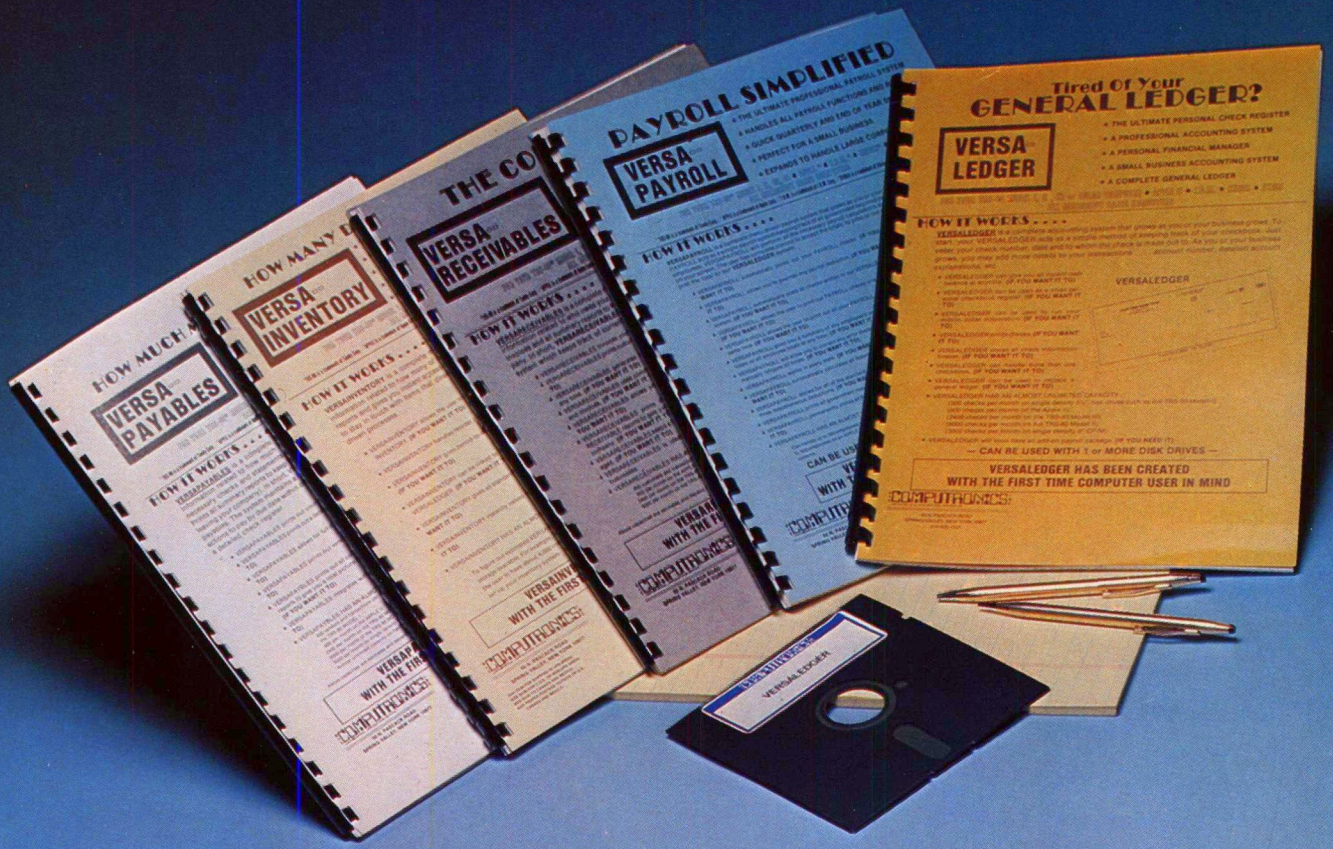

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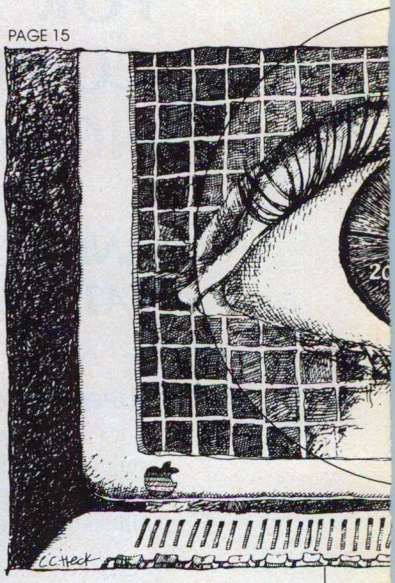

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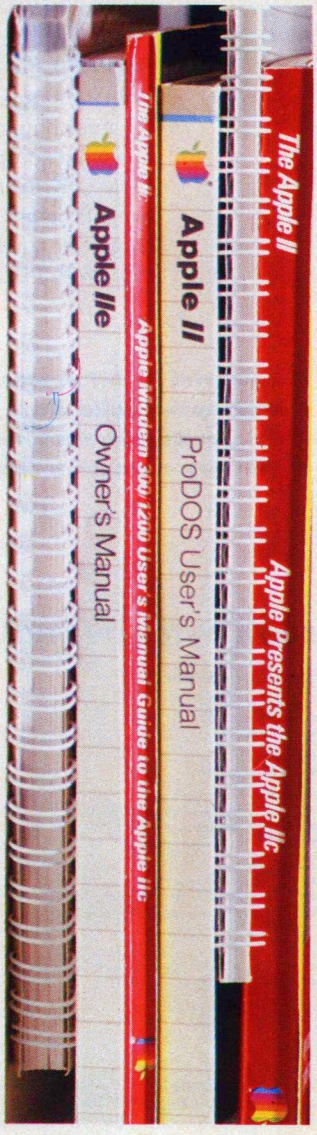

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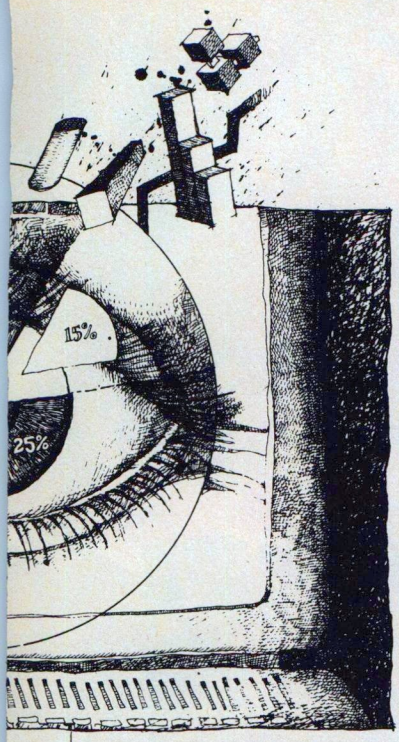

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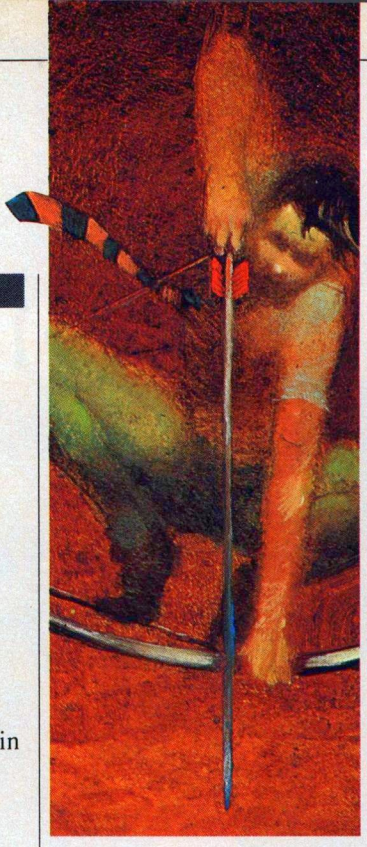

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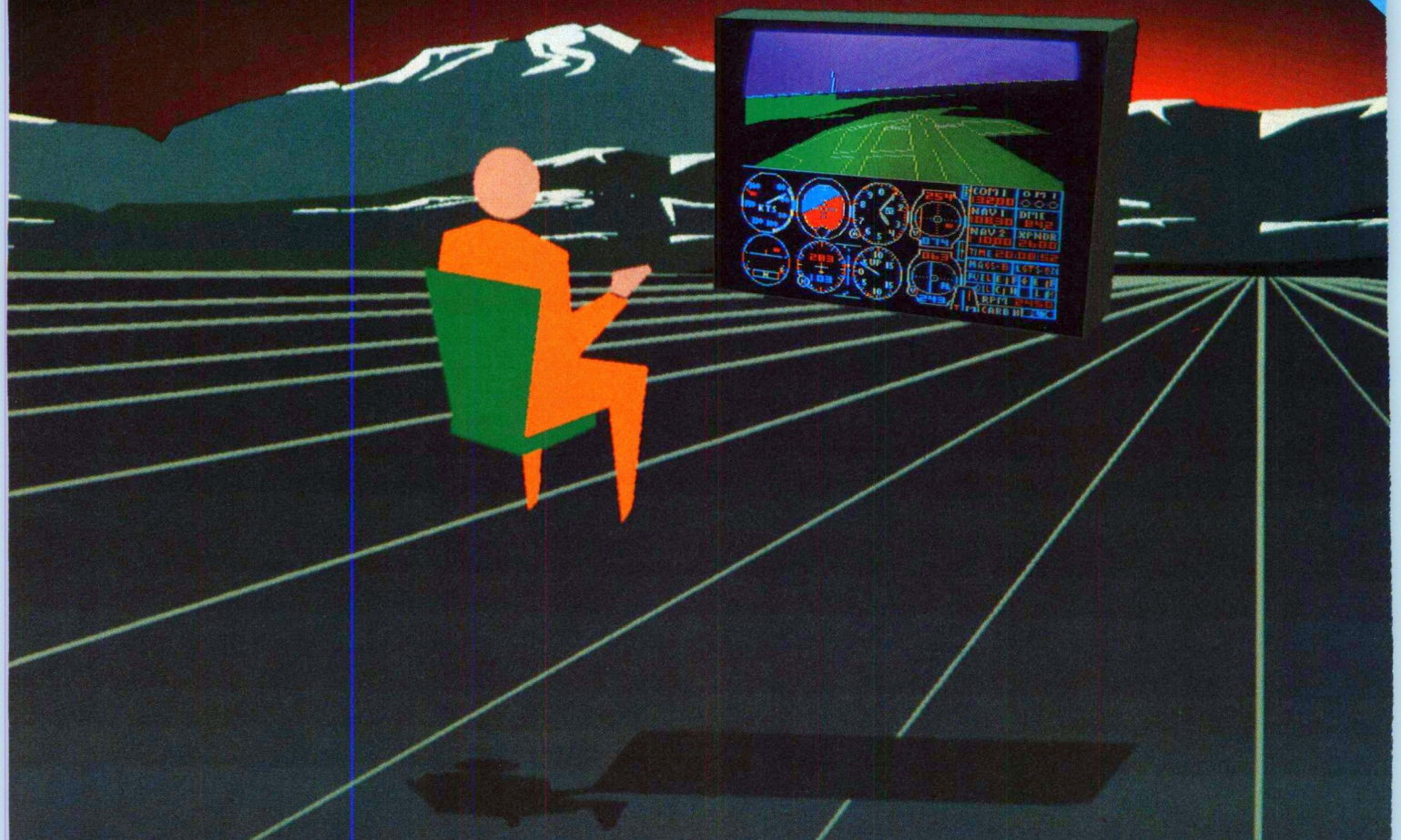

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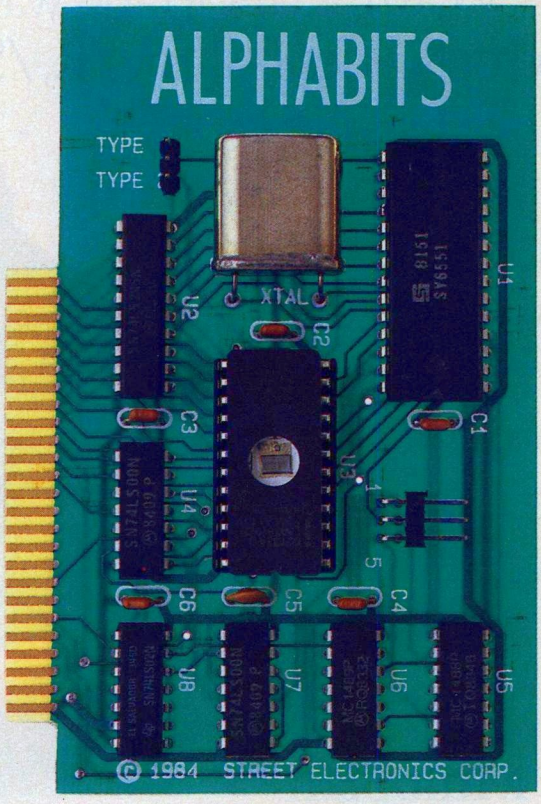

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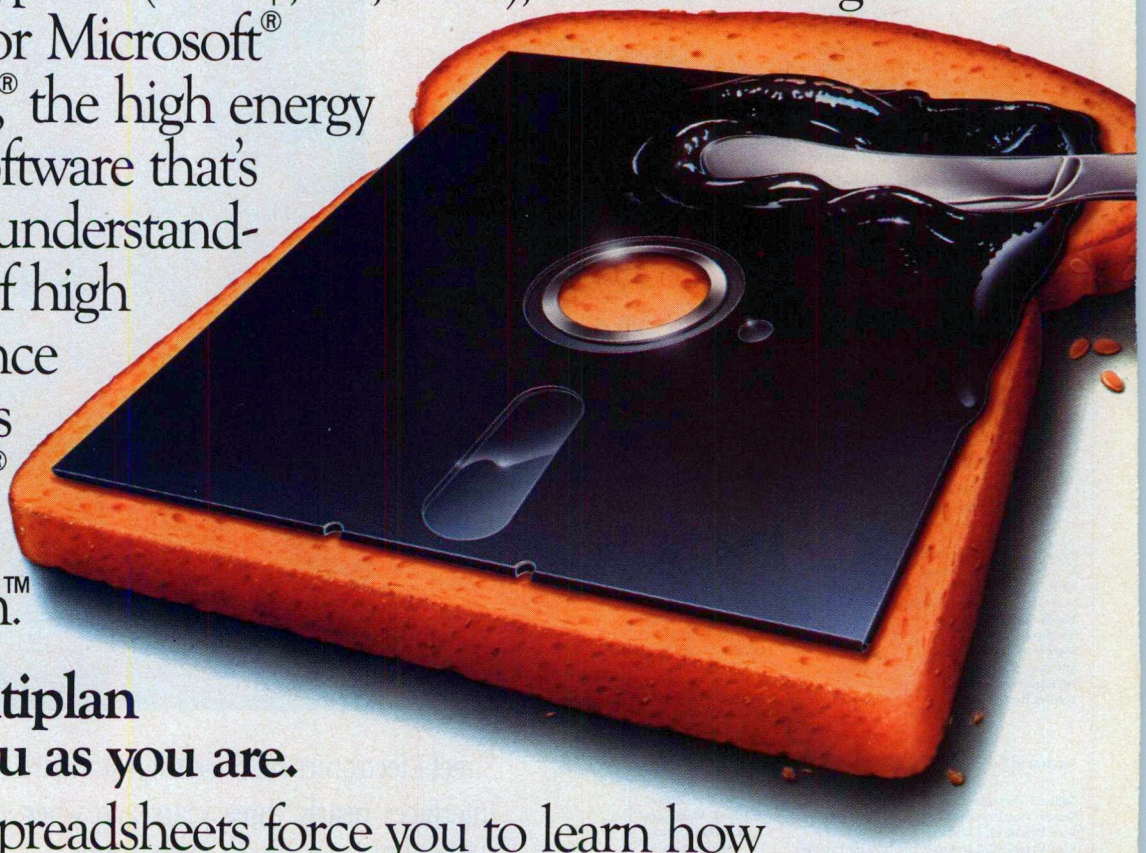

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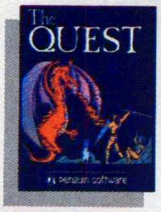

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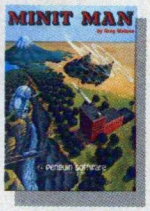

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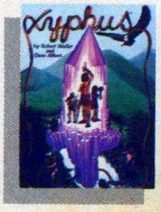

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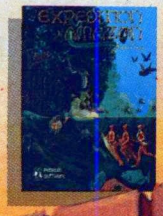

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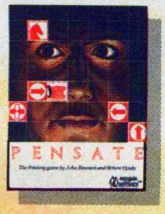

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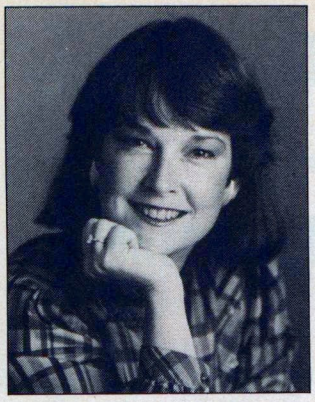

A main attraction of the mammoth 1984 Fall COMDEX show, Apple Computer, Inc. proved that the personal-computer war is anything but over.

APPLE IS STRONG AND CONFIDENT

Every year a few major computer shows signal the state of the microcomputer industry. Last November's Fall COMDEX in Las Vegas was no exception, and Apple Computer, Inc., made a strong showing.

COMDEX has become the most important trade event of the personal-computer industry, witness the 22 miles of aisles; the thousands of booths; and the throngs of dealers, exhibitors, and reporters at last fall's show.

Some industry pundits complained of a lack of innovation, commenting that exhibitors were merely turning out bigger and better versions of existing products.

I cannot concur with that reproach, however. Industry observers, who have seen years of impressive innovation and hypergrowth, may have unrealistically high expectations. Also, Apple was not a target of these criticisms and proved to be one of the main attractions at the show. There were actually plenty of new and interesting products at COMDEX, especially in the Apple arena.

Compared to the 1983 COMDEX shows, at which Apple was viewed as a seriously wounded soldier in the war with IBM, 1984's Fall COMDEX was a dramatic contrast. With many of its wounds healed, Apple was strong and confident. In 1983, many observers thought that IBM had won the war of personal-computer standards, but, with the introduction and subsequent development of the Macintosh, Apple has stubbornly clung to its desire to set a new standard.

Although I have to admit that I was concerned in 1983, last fall's trek to Las Vegas convinced me that Apple was holding its own, providing innovations that the rest of the industry could not ignore. My conviction sprang from the moves of various companies to imitate the Macintosh's distinctive software interface, which makes computers easier to use. Most notable was Digital Research's new software product called GEM, for the IBM Personal Computer and other compatible computers. GEM makes the PC work nearly identically to the Macintosh, with pull-down menus and icons. Well, you know what they say—imitation is the sincerest form of flattery.

Apple's regained strength in the marketplace was also reflected by the plethora of companies designing software and hardware products to work with Apple computers, especially the Macintosh. No one need be concerned anymore about a lack of software for the Mac. If you doubt that assertion, take a look every month at "Pipeline," our coverage of the latest software and hardware of interest to Apple owners. It starts on page 134 in this issue.

So, as you can tell, I am feeling quite buoyant about the Apple market. I don't mean to imply that there isn't room for growth, but I am happy to report that after a long, hard couple of years, Apple is back on track and running strong.

For the scoop on the hottest products at COMDEX, as well as other tidbits on the industry, please turn to Fred Davis' column, "News+," which appears, starting this month, in a new location toward the front of the magazine. ✚

Maggie Canon

MAGGIE CANON/**EDITOR**

The word is out on word processors. Format-II® ranked number one.

We've always thought of Format-II as the finest, easiest to use word processor for Apple® II+, IIe and Apple IIc computers. We're pleased that Peelings II magazine agrees. They judged Format-II best out of 18 leading word processors. Here's why:

Format-II makes editing easy. There's our unique editing process: simple, mnemonic commands logically relate to the task you want to perform. To center text, you press [C]. To delete, [D]. To justify, [J].

And since what you see on the monitor is exactly what will print out, editing and formatting is always a breeze.

The Peelings II reviewer said, *"Format-II is one of the few word processors that is so comfortable and predictable, I would consider it as an addition to my small library of personal software."*

Format-II supports all printers. Unlike other word processors, Format-II is compatible with *every* printer that works with the Apple, from the simplest dot matrix printer to the most advanced letter quality printer.

A built in mailing list at no extra cost! Actually a database system resembling an index card file. A SORTING program will arrange the mailing list alphabetically or numerically. Powerful LOGIC commands merge specific entries into form letters and documents.

Peelings II Magazine Rating

FORMAT-II	1
SCREEN WRITER II™	2
PIE WRITER™	3
WRITE AWAY™	4
LETTER PERFECT 5™	5
WORDSTAR™	6
MEGAWRITER™	7
APPLE WRITER II™	8
PERFECT WRITER™	9
CORRESPONDENT™	10
SPELLBINDER™	11
MAGIC WINDOW II™	12
ZARDAX™	13
SUPERTEXT 40/80™	14
GUTENBERG™	15
WORD HANDLER™	16
SELECT™	17
SANDY™	18

Reviewed by John Martellaro, September 1983, based on Peelings II rating system for performance and performance to price ratio.

In the words of the Peelings II reviewer: *"This is the best program I have seen for people who do a lot of work with mailing lists, form letters and short correspondence."*

An easy to follow manual. Essential to any good program is a manual that's clear and understandable. The Peelings II reviewer describes the Format II manual. *"All in all, it is one of the best word processor manuals I have seen. The latest documentation is a model of clarity and organization."*

Put it all together. Then add features such as support of hard disk drives and a standard DOS text file format compatible with spellers and communications programs, and it's not hard to see why Format-II has earned the number one rating.

The words of the Peelings II reviewer sum it up: *"I cannot think of another word processor that would be better overall for business use."*

Thanks Peelings II. We couldn't have said it better ourselves.

For a reprint of the full review, or to order Format-II, contact: Kensington Microware, Ltd. 251 Park Avenue South, NYC, NY 10010, (212) 475-5200.

Format-II requires 64 K and an 80 column card.

Format-II is a registered trademark of Kensington Microware Ltd.
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CIRCLE 277 ON READER SERVICE CARD

LETTERS TO THE EDITOR

PRODOS TIME AND DATE

Dear *A+*,

If you've used the new ProDOS-based upgrade of Apple Writer, you know that the software makes no provision for implanting the time and date onto files other than by means of a Thunderclock.

Here's a tip on how users of the new ProDOS Apple Writer can implant the date and time onto their Apple Writer files and formatted disks without using a Thunderclock. Basically, the procedure involves substituting the ProDOS on the ProDOS users' disk for the ProDOS on the Apple Writer disk:

1. Complete the date-and-time setting program on the ProDOS users' disk.
2. Go to ProDOS BASIC.
3. Remove the ProDOS users' disk from drive 1 and insert the ProDOS Apple Writer disk.
4. Change the prefix to the following: /AW2MASTER.
5. Use the new dash command to run the AW.SYSTEM file in this way: -/AW.SYSTEM.

After completing these steps, you will have booted up ProDOS Apple Writer with your date and time in memory, ready to be stamped on your Apple Writer files as you create and modify them or on the disks that you format using Apple Writer.

Applesoft BASIC programmers can create a ProDOS Apple Writer preboot by copying the time/date program on the ProDOS users' disk onto a ProDOS start-up disk (a ProDOS disk containing both ProDOS and BASIC.System from the ProDOS users' disk that can boot or start up by itself). By naming the time/date program STARTUP, you'll be able to run the program when the disk is booted. Add the two ProDOS commands listed above to this program, with an appropriate menu, and you've created a handy preboot for ProDOS Apple Writer.

Robert Flickinger
San Francisco, CA

PRODOS SECRETS

Dear *A+*,

I've been a TRS-80 user from Day 1. Last June I bought an Apple IIe. My disappointment with ProDOS/Applesoft has been almost boundless. How blessed Tandy users are to have a multitude of DOSs and Enhanced BASIC to choose from.

Imagine my shock when I came upon Charles Doherty's article "ProDOS Revisited" (*A+* November 1984, page 61). I was just thinking about buying a RAM/Disk Utility Program yesterday. And who has ever heard of STORE, RESTORE, FLUSH, etc.? Which sent me scrambling back to the little *ProDOS User's Manual* that came with it. Nothing! Only silly instructions on how to use some simple, menu-driven programs. Not a hint of the available commands. Not even a little hint that for $25 to $150 you can buy more books to find out what is there. Not even a little hint that some of the old DOS 3.3 commands may no longer work in your ProDOS program. Nothing!

I hope you'll consider doing something more in depth. Surely there must be others just as ignorant as I am.

Jerry Rutledge
Waseca, MN

OMNIS INFO

Dear *A+*,

I followed with interest your tutorial on dBASE II. Many more sophisticated database programs are on the market now, and some of us would appreciate some tutoring on software that is more state of the art. In your September issue you reviewed one such program, Omnis 2. I am a new user of Omnis 3 on an Apple IIe—an extremely powerful and flexible database system. Since it is a British product, I have been unable to find much in the way of local support, although Organizational Software Corporation has told me it is developing additional documentation. Are any *A+* readers aware of any users' groups or additional documentation on the product?

Jill C. Hartman
El Paso, TX

CORRECTIONS

The Print Shop

In our review of The Print Shop on pages 95 and 96 of the December 1984 issue of *A+*, we stated "The Print Shop includes bright-colored tractor feed paper . . . , matching envelopes, and colored ribbons." Actually, the colored ribbons do not come with the package, but you can order them separately from Brøderbund, using an order form that comes with each package.

Fire in the Valley

In our two excerpts of *Fire in the Valley* (December 1984 and January 1985), we neglected to list the book's publisher. *Fire in the Valley* is published by Osborne/McGraw-Hill, of Berkeley, California.

Seeing Double

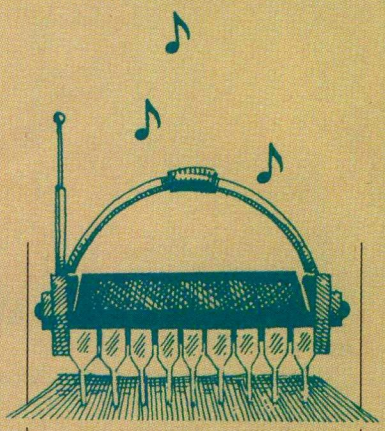
The two insets in the illustration of "Seeing Double, Part 1," (*A+*, December 1984, page 99) are courtesy of Doublestuff Software, Inc., Brooklyn, New York.

SAT Improvement

Our coverage of the College Board SAT program from Krell Software ("Scoring on the S.A.T.," November 1984, page 72) included the following sentence: "If students use the program for at least six hours and do improve total SAT results at least 70 points over the previous score, buyers can get their money back by presenting the results of both tests." The sentence should have read, "If students use the program for at least six hours and *don't* improve total SAT results . . . buyers can get their money back by presenting the results of both tests." Also, Krell has informed us that it has amended the money-back guarantee for the latest version of the program to apply only to students who don't improve their SAT results more than *80* points over their previous score.

NEWS+

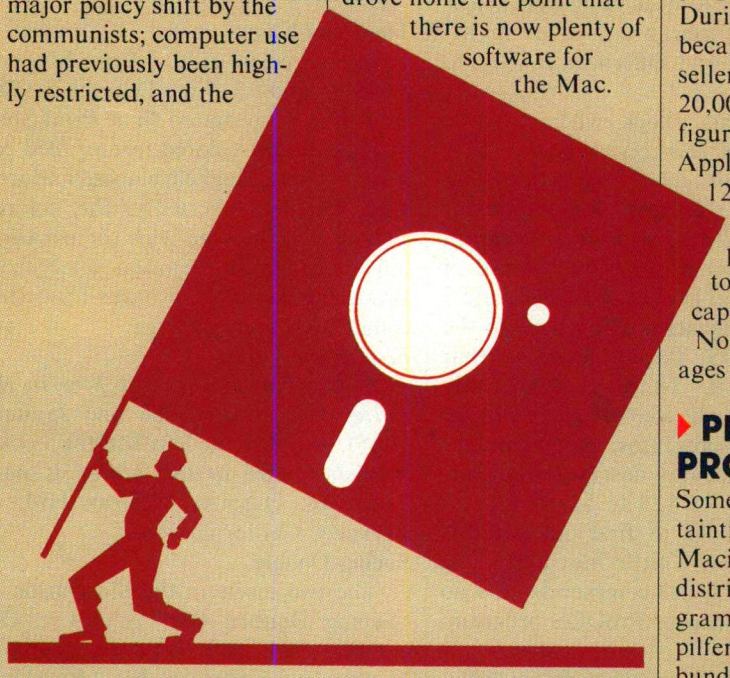
BY FREDERIC E. DAVIS



RED APPLE

The USSR has announced another of its famous five-year plans. This time the focus is on teaching personal-computer use in schools. This decision represents a major policy shift by the communists; computer use had previously been highly restricted, and the Russian populace did not have access to personal computers.

To kick off their five-year push into personal computing, they have introduced the Agat, the first Soviet-made microcomputer. Believe it or not, the Agat is compatible with the Apple II. The color of the case is, appropriately, red.



APPLE SHINES AT COMDEX

Apple Computer, Inc., stole the show at the 1984 Fall COMDEX Show in Las Vegas. President John Sculley delivered the show's keynote speech, and the large, two-story Apple booth was the most crowded at the five-day show. The booth was bursting with new third-party products for the Macintosh, which contributed to the popularity of Apple's exhibit and drove home the point that there is now plenty of software for the Mac.

ALL THAT JAZZ

Lotus Development Corporation is putting the final touches on its long-awaited product Jazz, an integrated-software package for the Macintosh. The program, which will be available in March, looks excellent, but I must confess to some skepticism about the name. Since Lotus' 1-2-3 is widely considered a standard in business software, the introduction of Jazz enhances the Macintosh's credibility as a business computer. Because the program outperforms 1-2-3 and Symphony, IBM PC owners may soon be looking at the Macintosh with a bit of envy.

APPLEWORKS VS. LOTUS 1-2-3

The AppleWorks integrated-software program for the Apple II series is the most successful software program since Lotus 1-2-3. During 1984, AppleWorks became a runaway best-seller, with sales climbing to 20,000 units a month. This figure garnered AppleWorks an enviable 12% share of all the software sold in the U.S., placing it second only to Lotus 1-2-3, which captured a 15% share. No other software packages came close.

PIRATE PROBLEMS

Some software pirates are tainting the reputation of Macintosh users' groups by distributing purloined programs. For instance, pilfered copies of Brøderbund's Lode Runner for the Mac were distributed at the Stanford, California, Mac Users' Group before the program was even released. Organizers of users' groups should be more alert to this problem and apply peer pressure to stop program poaching. Users' group meetings are for the exchange of information, not for the exchange of copyrighted programs.

CHIP CHAT

Philips, the Dutch electronics giant, introduced a music-synthesizer chip—as yet unnamed—at last year's Electronics Components show in Munich. The chip can generate stereo sound, complex music, and sophisticated sound effects. The 16-pin chip has six tone generators, two noise generators, and six noise-frequency mixers. The good news for Apple users is that the new music chip is compatible with both the 6502 and the 68000 families of microprocessors.

MACINTOSH OFFICE

Apple is reportedly planning to make a big push into office automation this year, an area previously dominated by IBM, Xerox, Wang, and Lanier. The cornerstone of the Apple office-automation plan is the concept of interconnecting a group of Macintoshes with the low-cost AppleTalk network. The network will let the Macintoshes share common peripherals such as a mass-storage device and the sophisticated new Apple laser printer.

WOZ WINS ONE, LOSES ONE

Gambling is a way of life in Las Vegas, and we found Steve Wozniak "doing in Rome as the Romans do" during Fall COMDEX. Woz claims to have a new system for winning at blackjack, which seemed to be working, judging by the number of $100 chips he had stacked up. Woz was

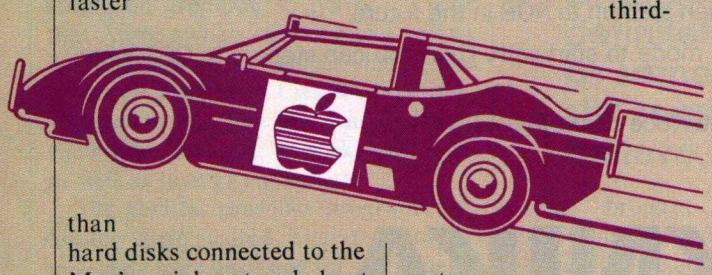
also immersed in controversy because of an *InfoWorld* article in which he was quoted as saying that Apple was planning a 16-bit version of the popular IIe computer, called the IIx. Apple vigorously denied the rumor and pressured Woz into writing a letter to *InfoWorld* retracting his statements about the IIx.

HOTTEST NEW PRODUCT AT COMDEX

Last month, "News+" reported that Apple was rumored to be planning a new version of the Macintosh, code-named the TurboMac, featuring a built-in hard disk. A third-party developer has beaten Apple to the punch by introducing the HyperDrive, which should be available by the time you read this issue.

The HyperDrive is a 10-megabyte, 3½-inch hard-disk drive that mounts inside the Macintosh. It has a 5-megabit-per-second transfer rate and an average disk-access time of 85 milliseconds, which makes it a whopping seven times faster than hard disks connected to the Mac's serial port and about 20 times faster than the Mac's 3½-inch floppy drive. To top it off, an auto-start ROM chip allows the Mac to start up directly from the hard disk. With installation, HyperDrive purchasers will get a memory upgrade to 512K RAM for less than retailer charges.

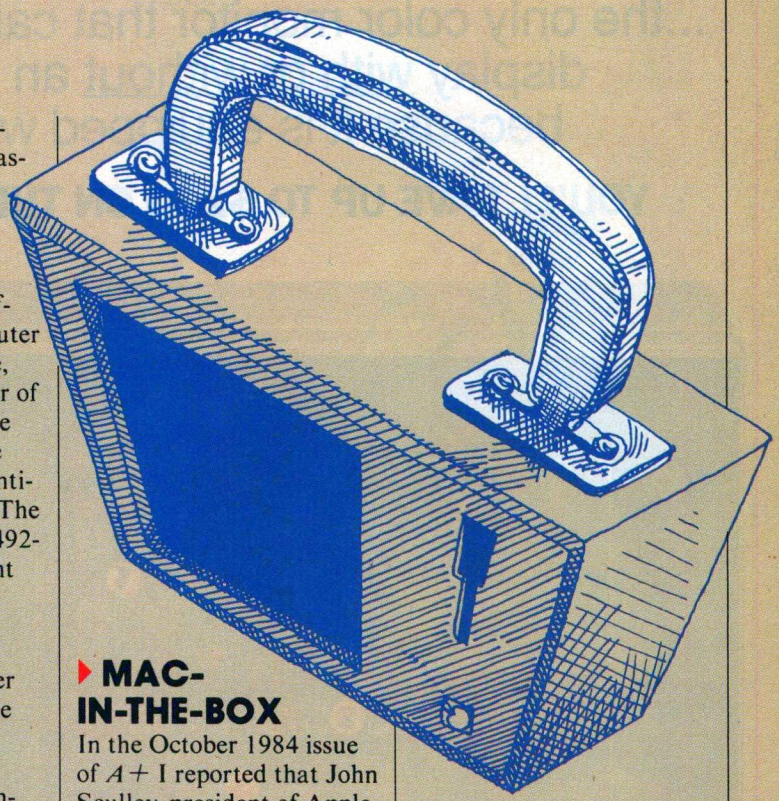
The HyperDrive is offered by General Computer Company of Cambridge, Massachusetts, producer of the Ms. Pac-Man arcade game and popular home video games such as Centipede and Pole Position. The phone number is (617) 492-6351. Tell them *A+* sent you.



JACKINTOSH

Jack Tramiel, the former president of Commodore who is now president of Atari, has announced Atari's plan for a Macintosh-like computer. It will use the GEM operating system from Digital Research, Inc. (mentioned in this month's editorial).

Although the GEM operating system looks superficially like the Macintosh operating system, Atari's GEM-based computer is not compatible with the Macintosh. Furthermore, the Macintosh has better software and more third-party support than GEM. Tramiel has an uphill battle ahead of him if he hopes to compete against the mighty Mac.



MAC-IN-THE-BOX

In the October 1984 issue of *A+* I reported that John Sculley, president of Apple, purchased several Mac-Colby computers. The MacColby, from Colby Computer of Palo Alto, California, is a genuine Macintosh computer that is rebuilt into a Compaq-style carrying case. The case provides space for two disk drives and other hardware, such as the 10-megabyte HyperDrive or Colby's own 20-megabyte internal hard disk.

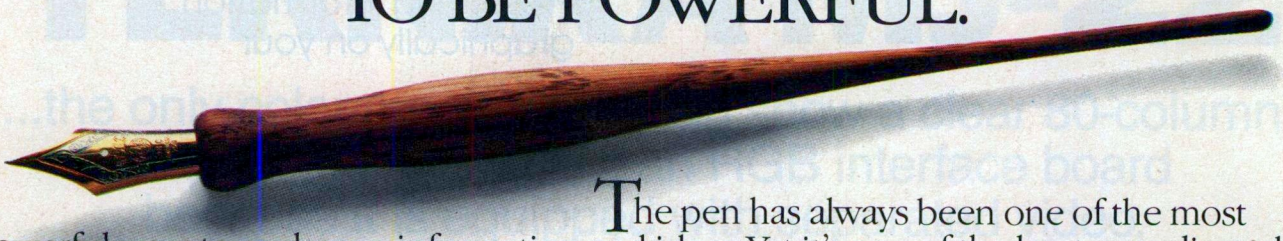
Unlike the regular Mac, the MacColby can fit under an airline seat, and it protects the video screen from being cracked or smashed. Colby sells a first-rate foam-padded nylon-and-leather carrying case that adds further protection. The MacColby is available either as a complete computer or as a low-cost kit for converting your own Macintosh into a MacColby.

Chuck Colby, president of Colby Computer, kindly lent a MacColby to *A+* for our journey to COMDEX last fall. Our MacColby had all the trimmings—two disk drives, 512K of RAM, an internal modem, 12-volt power-input jack for operating from a battery or motor vehicle, and even a video-output port for connecting an external monitor or video projector.

Although the MacColby is not quite as cute as the original Mac, the unit we had was a real dream machine loaded with extras. The MacColby seems ideal for salespeople, marketing reps, and others who are frequently taking their show on the road. Having all the add-ons in one package makes packing easier and prevents tragic accidents, such as forgetting the modem, the second disk drive, or a critical cable. +

MICHAEL SANCHEZ

IT DOESN'T HAVE TO BE COMPLICATED TO BE POWERFUL.



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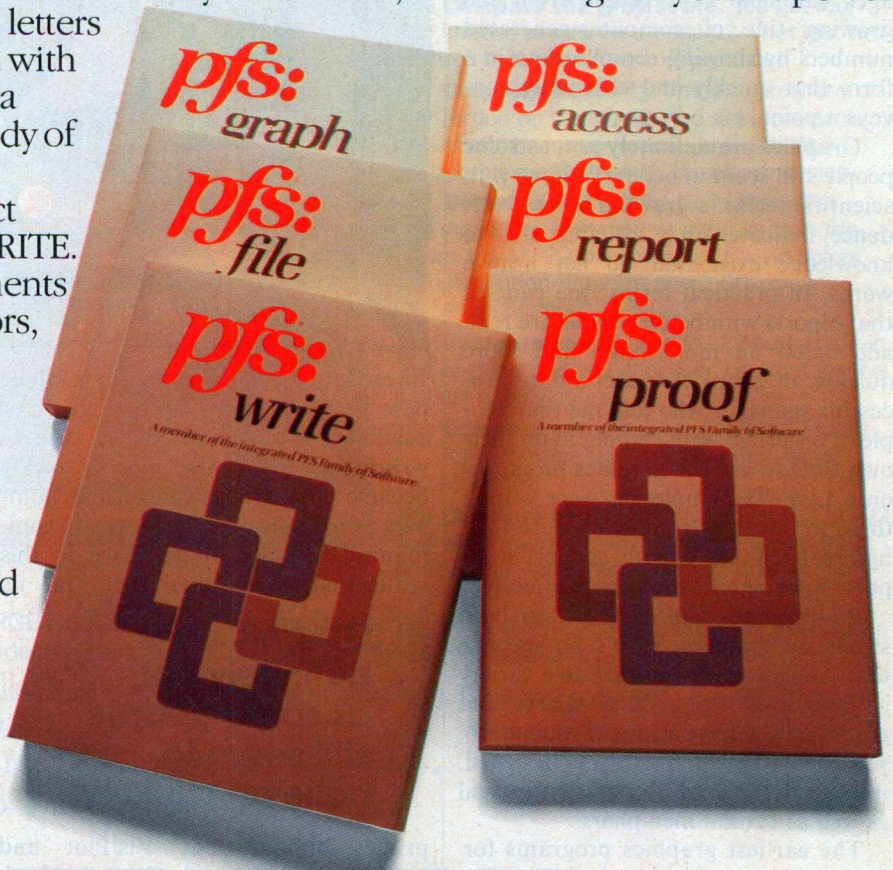

PFS SOFTWARE
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PFS:WRITE currently works on IBM® and equivalent personal computer systems, Apple® IIe and Panasonic. *PFS:PROOF will be available for IBM and equivalent personal computers in June. © Software Publishing Corporation.

business quickly found that graphic output was a necessary adjunct to the personal computer's number-handling capability.

As a result, many large businesses commonly used a spreadsheet to generate a set of numbers, then a graphing program to plot the results, and finally the corporate art department to turn the graphs into something suitable for a report or a public presentation. The graphics programs did the mathematical labor, but they weren't always up to the aesthetic requirements.

Visual Design

Current presentation programs are moving beyond this stage. Although the mathematical routines are still there and an accurate graph is just as important as it ever was, most programs now aim at producing immediately usable, professional-quality output. You still can't buy artistic talent on a disk, but you can find programs that treat the plotting of points and lines as just one step in a process of visual design.

The mouse and tablet make the computer more like a brush and a knife.

If you were paying much attention to small computers in the middle 70s, you know that Apple didn't invent the personal computer. What it did was make it significantly easier to use; relatively inexpensive; and, most important, able to use color.

The new programs and devices for presentation graphics can't do anything that you couldn't get done before, but this new generation does bring easy-to-use, affordable color tools to the process. The availability of these tools should bring about a veritable explosion of graphics in business communications.

Starting with the input side, you certainly have more options to choose from than you did just a few years back. The mouse, largely because of Apple's efforts, has become a standard input device for graphics programs, even on computers such as the IBM Personal Computer, to which it has to be added as an afterthought. Graphics tablets have also had a renaissance, with Apple's own model rereleased in an FCC-approved form, and a range of low-cost models such as Koala Technologies' KoalaPad appearing on the scene.

For casual users, these simple input devices mean that programs are easier to use, accepting positional input rather than just numeric values entered from the keyboard. You can just point to the destination of each element of a drawing.

The mouse and tablet make the computer more like a brush and a knife. Pointing devices make more transferable a whole range of nonverbal, nonkeyboardable skills that depend on the links between eyes, hands, and brain, to which words are not a party.

By the time you read this column, several firms should have delivered inexpensive video digitizers for the Macintosh and other personal computers. This type of product expands the graphic-input options, in this case to a whole world of existing and fleeting imagery.

Output

On the output side, the change has also been dramatic. Plotters have come down in price to a level most businesses and many individuals can afford, and ink-jet and thermal printers now provide sufficient resolution for striking graphics output.

Pen plotters are still the preferred output devices for presentation graphics when resolution is important. If the software can keep track of the numbers, even a low-cost plotter can produce output accurate to better than one part in a thousand. A plotter can draw smooth lines (although more so for rectilinear shapes than for curves or diagonals), a talent that even the best printers sadly lack. Using multiple pens, plotters can add as many layers of color as clarity and software permit.

The first pen plotters for personal computers used a single pen at a time, and the software prompted you when you needed to change the pen for multicolored drawings. Most of the plotters in the current crop use multiple pen turrets that allow the plotter to select two to eight pens without manual intervention.

If you make frequent presentations before large audiences, plotters are particularly handy for presentation-graphics output because most can draw directly on the clear plastic of overhead-projector slides, which you'll want to use for overlays and other precision work.

For color results with resolution close to that of ordinary video, color ink-jet printers provide you with a quick output method for graphs and charts. In just a few minutes, a color ink-jet printer can turn out a complete

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* 64K to 192K Gold Card Expanson	$ 325	$ 239
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Key Tronic, KB200 Keyboard (II+)	$ 298	$ 219
Koala, Touch Tablet w/Micro Illustrator	$ 125	$ 75
Programmer's Guide	$ 15	$ 12
Kraft, Joystick (II/II+)	$ 65	$ 49
Game Paddles (II/II+)	$ 50	$ 39
M&R, Sup R fan (II+ only)	$ 50	$ 30

MISCELLANEOUS

*Microsoft, Z80 Softcard (+ or e)	$ 345	$ 235
Z80 Softcard Premium(IIe)	$ 395	$ 275
*Orange Micro, Grappler Plus (e or +)	$ 149	$ 99
16K Buffer Board for Grappler Plus	$ 175	$ 99
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Paymar, Lower Case Chip, Rev. 7 (II+)	$ 50	$ 19
*PCPI, Applicard, 64K w/128K Ext.	$ 595	$ 395
Applicard 6MHz, 14 features	$ 375	$ 275
RH Electronics, Super Fan II	$ 75	$ 59
*Titan/Saturn, Accelerator IIe	$ 599	$ 399
Trackhouse, Numeric Key Pad	$ 149	$ 94
Transend/SSM, AIOII, Serial/Para I/F	$ 225	$ 169
TG, Tracball or Select-A-Port	$ 40	$ 26
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page of multicolored graphics at an incremental cost of just pennies. You can use the same printer to crank out text, between graphics tasks. Considering such a printer's speed and price, you can put color graphs in everyday business memos.

Laser printers promise detail instead of color, a trade-off that Apple seems to have had some success with on the Macintosh and Lisa. Although Apple hadn't released any details about the graphics capability of its laser printer when I wrote this column, word had it that it would be even better than what you could see on the screen.

The mouse, largely because of Apple's efforts, has become a standard input device for graphics programs.

Hooking up a printer to produce the output of a presentation-graphics package is not always easy. Although Apple is moving to simplify the link between software and the various types of printer hardware, you'll still need a graphics-output card, driver program, or both for many printer/computer combinations.

The Software Is Better

Between the input and output stages, the current releases of presentation software give you better and more powerful features than did the first commercial efforts. Along with basic charting of numbers from spreadsheet or directly entered data, some of the more powerful presentation-graphics systems give you the ability to create billboards, put together slide shows, overlay charts and sketches, combine charts, and assemble complete page formats.

Billboarding and charting capabilities let the verbally and spatially oriented have a crack at graphics. Rather than showing numbers on graphs, these features let you make large headlines or geometrical shape-based charts. You'll particularly like these features if you give talks or draw up organizational charts.

Billboarding, also termed sign making or headlining, lets you take words and phrases, position them on an image, change their type style, underline them, switch to italics, add other forms of emphasis, and then print out the result. If you've used MacPaint on a Macintosh, you've probably found out how easy it is to whip out a sign or a title page by combining the alphabetic mode and some lines and boxes.

MacPaint is probably one of the easiest programs to use, but some of the packages developed for the II family are even more advanced. In addition to basic line-by-line formatting, some programs add commands, such as centering, justification, and tabs, that are common in word-processing programs.

Slide shows let you turn your computer from rehearsal hall to performance theater. In this application, you build up a series of graphic images and then tell your system to display them in succession, on command. You can put the result to work as a training tool, sales demo, or paced graphics support for a live talk.

Many packages for the Apple II series now include slide-show capabilities, ranging from the ability to summon screen images from disk, one by one, to features that approach a cross between animation and CAD (computer-aided design). The IIe and IIc with double-hi-res graphics make particularly good color-slide-show machines.

Slide shows let you turn your computer from rehearsal hall to performance theater.

If you need this kind of capability but can settle for black and white, the Lisa and Macintosh can also present sequenced images. You won't find much yet in the way of commercial software, but if you like to write your own, you'll see that Macintosh Pascal has a great set of interactive graphics commands.

Even if all you want to do is graph numbers, you'll still find that current presentation software is a step up from its predecessors. Microsoft Chart, for example, lets you pick from more than half a dozen different types of bar charts, five area charts, seven line charts, six pie charts, five scatter plots, and probably even more.

All these capabilities may seem complex, but they really aren't—if I could only show you a diagram, it would be a lot more obvious. ✚

Steve Rosenthal is a writer and lexicographer who tries to maintain a perspective on other joys and problems in the world besides those involving personal computers.

MAC/APPLE
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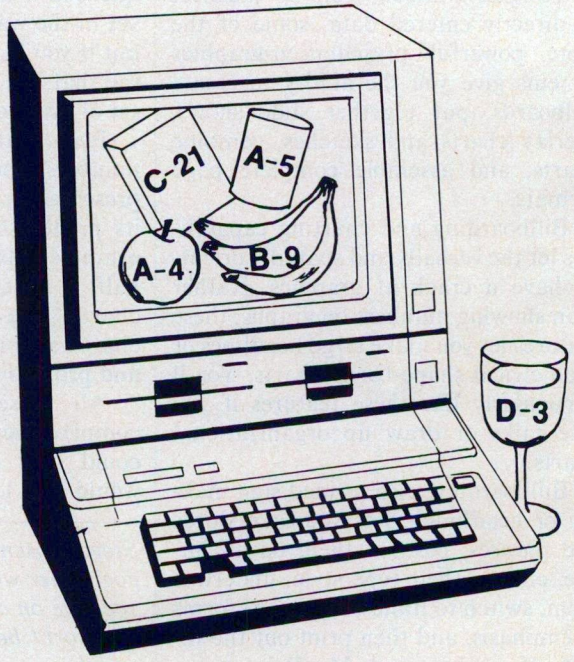
- 30 Categories
- 900 Products, Prices, Quantities



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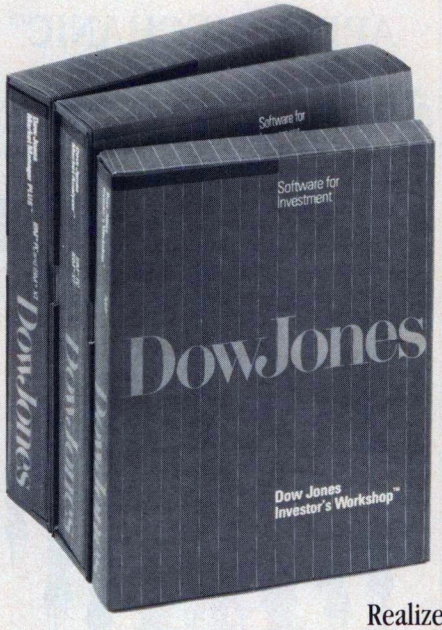

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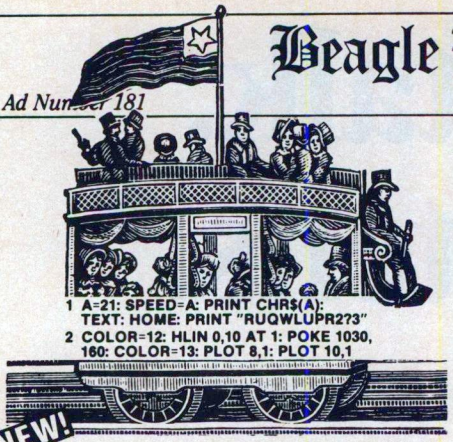
Ad Number 181

Beagle Bros Apple® Software Report

"All the News That Fits"

Fall/Winter 1984



```
1 A=21: SPEED=A: PRINT CHR$(A):
  TEXT: HOME: PRINT "RUQWLUPR2?3"
2 COLOR=12: HLIN 0,10 AT 1: POKE 1030,
  160: COLOR=13: PLOT 8,1: PLOT 10,1
```

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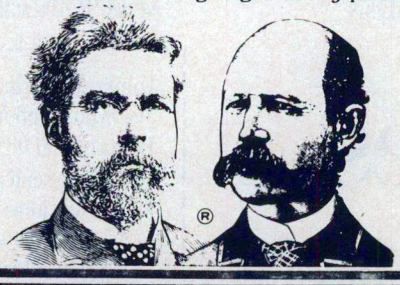
Triple-Dump's print routines can be run directly from the disk, or included in *your* programs.

Also included is a bonus GIANT BANNER program that makes 8½" high signs on *any* printer.



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The Beagle Bros Catalog

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  Reword DOS 3.3 commands. Change "Catalog" to "Cat", "Syntax Error" to "Oops" or *anything.* Includes many meaty tips for altering DOS, including program "save-protection".
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  Edit Applesoft without cursor-tracing. Features insert & delete and fast search & replace. Make all keys be "function keys" to type anything you like (ESC-1 catalogs disk, etc.). Move DOS 3.3 out of main memory to add 10K of space.
- ❑ **SILICON SALAD** (II+, IIe, IIc, DOS 3.3) **24.95**
  Over 100 utilities and tricks— hi-res program splitter, DOS killer, disk scanner, hi-res text imprinter, 2-track catalog...
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- ❑ **UTILITY CITY** (II+, IIe, IIc, DOS 3.3) **29.50**
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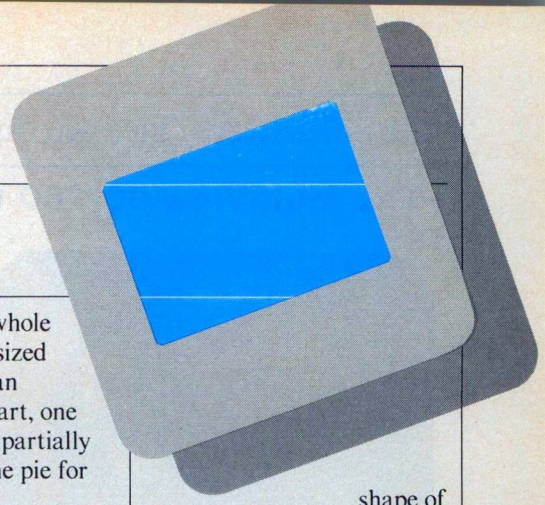
PRESENTATION GRAPHICS



▶ APPLEWORDS
BY STEVE ROSENTHAL

A short glossary

ANALYSIS
In reference to charts and graphs, ones designed primarily to help users make sense out of data (as compared to presentation graphics, which are intended to help others see the user's view).

AREA
A type of chart that shows values as the area under a line or curve. These charts often show cumulative growth, such as population, total profits, or products shipped.

BAR CHART
A popular type of chart for presenting data. A bar chart shows a value as the length of a horizontal bar or height of a vertical one. Usually, bar charts show multiple series of comparative values on a single chart. Popular types include clustered, stacked, three-dimensional, and flat.

CLUSTERED BAR
A type of graph that shows comparative values as adjacent sets of bars at each interval, with one bar proportional to the length of each of the quantities being graphed. Normally, bars for each series of values are shown in a distinct color or crosshatch pattern.

DIF
Short for Data Interchange Format, a file format created by Software Arts to enable its VisiCalc program to exchange data with other programs. Most popular spreadsheet and database programs can optionally produce DIF files, and most presentation-graphics packages can accept DIF files for input.

FLOAT
To move text or other nonscaled elements around on a chart. A float capability allows you to adjust the titles and legends on your charts for maximum legibility.

FOIL
A transparent slide for overhead projectors. Most plotters can draw directly on foils, either with their normal pens or with special surface-drying markers.

HATCH
Strictly referring to a pattern of crossed lines, this term commonly refers to a range of patterns made up of lines and dots for shading charts and graphs. To show complex charts on a monochrome display or with a one-color printer, you need hatch capability.

LEGEND
An explanation of symbols or hatching patterns on a chart or graph. Most presentation-graphics packages let you place a clear legend on your graph, often letting you format it for maximum readability.

LINE GRAPH
A common type of graph that shows the graphed values as a set of points connected by lines. Some packages let you choose between connecting the points, on one hand, or fitting the curve or smoothing the line to emphasize the overall trend rather than the individual points.

PEN COLORS
The separate colors that a graphics program can display, either on a screen or on an output plotter or printer. Typically, a presentation-graphics system can handle between one and a dozen pen colors.

PIE
The type of chart that shows constituents of a whole as proportionally sized slices of a pie. In an "exploded" pie chart, one or more slices are partially pulled out from the pie for emphasis.

PLOTTER
An output device that draws continuous lines on paper or other flat material. Many printers can show graphics displays made up of a series of closely spaced dots, but you can get more precise and attractive output with a plotter. Most graphics programs for the Apple can produce black-and-white output with a printer or a color result with an Apple Color Plotter or a similar model from another vendor. A plotter is relatively slow, because it must produce each line and curve individually, but it is the best output device for professional-looking results.

PRESENTATION GRAPHICS
The display of information in a graphic form to make a clear, quick, effective point to other people (in contrast to analytic graphics, intended to help users analyze their own data).

PREVIEW
To check graphics output on a screen before printing or plotting it. Although even a good color monitor can't show a graph in as much detail as a plotter can, having preview capability allows you to check the overall look of your graphs without waiting through the slower hard-copy process.

SCATTER
A type of graph that shows values as individual dots in relation to a set of axes. Values that are more frequent appear as darker clusters of dots, and the shape of darker regions can show overall relationships. This type of chart is variously called a scatter chart, scattergram, and scatter graph.

SLIDE SHOW
In a computer context, a computer controlling a series of prepared graphics, either unattended at fixed intervals, or on command. Just like their photographic equivalents, computer slide shows are used for presentations, training, and sales demonstrations.

SMOOTH
To apply a mathematical transformation to data points before graphing them, to lessen the effect of extreme changes. Smoothing can bring out trends that would otherwise be masked, or, of course, it can mask inconvenient details.

STACKED BAR
A type of bar graph that shows not only an overall quantity as the total length of a bar, but also the constituent parts as sections of the bar in different colors or crosshatching patterns. For example, a bar chart showing total sales might display each bar as a composite of segments that show sales for each region.

TEXT PLOT
Images made up of lines of text. Most of the more advanced presentation-graphics systems let you create titles and lines of text in a variety of type styles and sizes. This capability is most useful for making overhead slides. +

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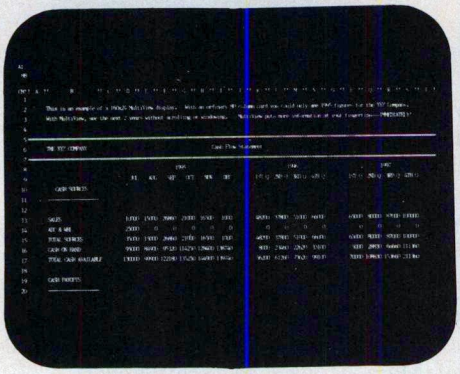
The MultiView 80/160 Card™ — the Intelligent Video Card for the II, II+ , //e, or Franklin featuring:



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Choose from among these highly readable screen sizes with a simple command: 80x24 80x32 80x48 96x24 132x24 132x30 160x24.

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Stretch the screen with one command. A 132-column screen becomes as easy to read as a normal 80-column display.

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//e Compatibility
Works in slot 3 of //e. If an extended 80-column card is in the auxiliary slot, use MultiView to program the auxiliary 64K with simple commands.

Programmer's Aids
Bring back into view your program or catalog listing that scrolled off screen with a hardware REVERSE SCROLLING command . . . or add a 25th, 26th, or 27th line to the screen with the PROMPT COMMAND.

Software Options

Compatible with DOS, ProDOS, CP/M, Apple Pascal, and many programs. Preboots available. New software to use MultiView features also available. Some selections include:

Universal Spreadsheet Preboot™
See any MultiView screen size with Visicalc, Multiplan, Magicalc, THE Spreadsheet, Acecalc, and IACALC. Use any attributes including underlining and bold face with your spreadsheet. **Price $49.95**

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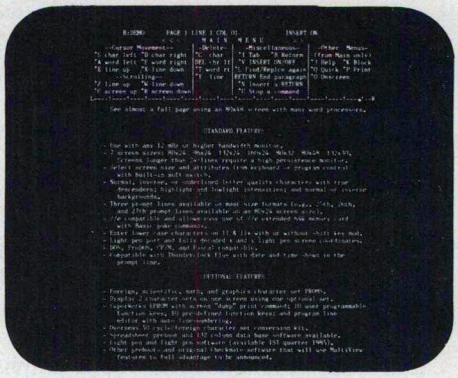

A monitor with long persistence phosphor is recommended for displays over 24 lines.

Hardware Options

Superworks PROM™
20 function keys, a program line-editor complete with auto-numbering, and a screen dump print command make your Apple a programmer's dream! **Price $39.95**

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Say more faster. With greater clarity and comprehension. And with a lot more impact. Say it in color.

Join the color revolution.

The revolutionary JX-80 gives you seven vivid colors to breathe life into charts and give soul to text.

But that's just for starters.

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CIRCLE 447 ON READER SERVICE CARD

You've just had a brilliant idea, one that will increase the sale of widgets, your company's principal product, by at least 20%. You're certain you can convince the president and the board of directors that it will work, with a presentation. Time to get out the poster board and markers? Wait—this is the computer age; let your Apple help you sell your ideas.

Presentation Graphics

Speakers, trainers, teachers—anyone who wants to present information in an effective way—can use presentation graphics. Large organizations usually have graphics or audiovisual departments to create presentations; but even in large companies, personal-computer graphics offer the advantages of speed and personality. You create the graphics when you need them (revisions are instantaneous), and they reflect your exact intent.

Your presentation can comprise a series of computer-graphics creations that you show on your Apple computer to a passive audience or to an audience that interacts with the computer via keyboard, light pen, or touch screen. You can also use your Apple to create a 35mm slide show, a printed booklet or portfolio of papers, a videotape, or a combination of these options.

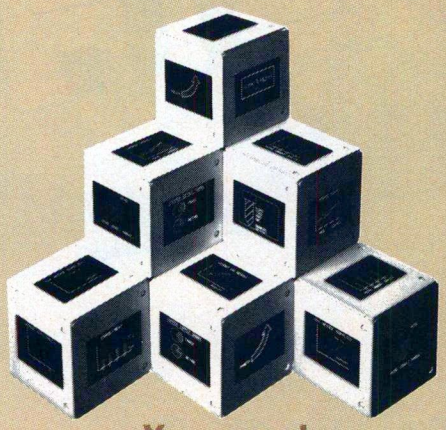
You can use any computer program that creates full-screen images to create presentation graphics.

This article focuses on two aspects of presentation graphics: creating the graphics and presenting what you have created. Although we concentrate on the Apple II series of computer, the basic concepts also apply to the Apple-32 series. (See "Making it on the Mac," page 28.)

The planning process is the most difficult and the most important part of preparing presentations. Ask yourself these questions: What is my objective? What do I want to present? Analyze your audience. Then make an outline of the material you want to cover and decide how serious or humorous your approach should be. Next, write a brief script. Finally, to visualize your ideas, create a storyboard.

The Storyboard

A storyboard—a sequence of sketches of each visual in the presentation—functions like a map that helps you get from here to there. Decide on the number of visuals you need, keeping in mind that it's better to have many simple screens than a few complex ones. You don't want to distract your viewers with a visual that is cluttered with symbols and/or words. It's wise to limit each image to one main idea, and if you include screens of text, limit the number of words on each screen—ten to fifteen words is the maximum.



You create the graphics when you need them (revisions are instantaneous), and they reflect your exact intent.

Armed with a well-thought-out storyboard, you're ready to develop the graphics. Since many presentations involve numerical data, you probably want to create some charts or graphs, and for this task, you need a business-graphics package.

Business Graphics Packages

Business-graphics packages create labeled charts and graphs from raw data. They should accept data from a spreadsheet, database program, or other business program that uses a standard data format. Most business-graphics programs accept DIF (Data Interchange Format), Sylk, or standard ASCII (American Standard Code for Information Interchange) files. Even if the data formats are compatible, you may have difficulty transferring data between different operating systems. If, for example, you are using a CP/M database program such as dBASE II and an Apple DOS 3.3 business-graphics program, you'll have to convert to the appropriate operating system. A good business-graphics program should allow you to hand-enter the data when the file is not easily transferable.

Business-graphics programs should give you a choice of graph type—bar, pie, or scatter/line. You choose the best type of graph for your data, possibly trying different graph types before se-

PRESEN

DOW CLEMENT PHOTOGRAPHY

TATIONS

WITH PERSONALITY

lecting which one best communicates your message.

Many graphing programs support continuous data on one axis only. If you work with scientific data, you may need to plot continuous data on both the x-axis and y-axis. Programs such as Scientific Plotter specialize in scientific plotting and may be a better choice for you than a business-graphics program.

Some programs, such as Multigraph, are equipped to perform complex mathematical calculations. This ability allows you to shuffle data, make predictions, and see the results.

If you need to create charts—such as flowcharts, floor plans, or circuit diagrams—rather than graphs, consider a specialized charting package such as Charts Unlimited.

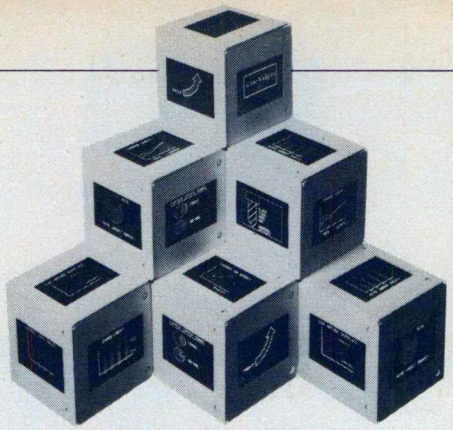
Keep your graphs simple. Line graphs are especially risky—it's easy to plot line after line, until the image looks more like a bowl of spaghetti than a graph. If you need more than three lines, create several graphs and add one line to each succeeding graph. You'll be showing them in succession, in any case, and the viewers will be able to focus in on the changes to each graph—i.e., the new lines—rather than trying to decipher a tangled mass.

All business-graphics programs allow you to label your charts. Some provide flexible labeling options such as "floating labels," which can be moved anywhere on the graph; vertical text; and a choice of fonts and symbols.

Pumping Up Your Presentation

Once you have the charts and/or graphs that form the core of your presentation, you can enhance the presentation by creating pictures, text screens, or title screens. For example, you may want to illustrate a bar chart of fruit sales with pictures of fruit. You may want to fill a pie chart with interesting color patterns or label a bar chart with a bold display font. These extra touches create presentations that are uniquely yours.

Unless you are using The Graphics Department—which contains a complete set of graphics utilities, including a lettering module—you will need a good Apple graphics package. Most business-graphics programs create standard 8K Apple pictures, so you can load your charts into any graphics package for further enhancement. Use a graphics package that has a diversified color palette, a choice of fonts, and editing utilities. The Complete Graphics System or the Digital Paintbrush System are two examples. For an extended choice of fonts to create title pages and text screens, we recommend Apple Mechanic or Fontrix.



Line graphs are especially risky—it's easy to plot line after line, until the image looks more like a bowl of spaghetti.

▸ MAKING IT ON THE MAC

If you have a Macintosh or a Lisa, you can create your presentations using Microsoft Chart, MacPaint, MacDraw, or LisaDraw. The planning, scripting, and storyboarding phases are the same as those for the Apple II series of computers, but creating the graphics is far easier on your Mac or Lisa. Take advantage of the many clip-art programs that have appeared for these machines, such as The Art Department for the Lisa, and McPic, DaVinci, and Mac the Knife for the Macintosh (see *A+*, October 1984, page 98).

After creating the graphics, you can print, plot, or photograph the screens for presentation purposes. Although we have not yet heard of any company that creates 35mm slides from the Mac or the Lisa, you can create a computer-based slide-show program with The Slide Show Magician.

If the monitor of the Macintosh is too small for your presentation, Professional Data Systems sells a Macintosh that is modified so that you can plug it into a large video screen. This company can also convert your Macintosh with its Mach I or Mach II System. Be aware that the Mac's high resolution does not translate well to a standard video monitor. For high-quality large-screen presentations, you'll need a high-resolution (high-bandwidth) monitor.

The Imagewriter turns out excellent hard-copy presentations, but, even better, companies such as Manhattan Graphics produce exceptionally fine, professionally typeset material from Macintosh documents.

When you have completed your graphics, you'll want to assemble them for viewing. Most presentations are either slide shows or printed copy. Three major factors bear consideration when you transfer your computer-screen images to other media.

Aspect ratio—The aspect ratio of a computer screen is 4:3. That is, the screen is approximately one-third wider than it is long. Other media may have a different ratio. The software that translates your image to another medium should adjust the aspect ratio to provide an image comparable to that on the screen. Pie charts are most dramatically affected—pie charts without aspect-ratio correction become ovoid charts.

Resolution—The resolution of the Apple graphics screen at 280 pixels horizontally × 192 pixels vertically creates jagged lines and typefaces. Printouts and slides taken directly from the Apple screen reflect these "jaggies."

Color—Be especially careful with color; some Apple colors do not work well with other colors. It's impossible, for example, to plot an orange bar next to a green bar everywhere on the screen. Similarly, a blue bar next to an orange bar often yields an unwanted white line between the bars. Some colors are indistinguishable from others in black-and-white printouts. Programs such as Apple II Business Graphics and The Graphics Department let you experiment with the colors until you achieve satisfactory results.

Slide Shows

To create a computer-based slide show, you need a slide-show utility. Screen Director, Frame-Up, Transitions, or the slide-show utility in The Graphics Department are programs that sequence a series of full-screen pictures when you press a paddle button or key. They can also give you a timed self-running display.

Good slide-show programs provide a choice of "wipes"—transitions between pictures—as well as a method of packing the pictures to allow more than the usual 13 or 14 on a single disk. Some slide-show programs, such as Frame-Up and The Screen Director, include a utility to create simple text slides. Fast-loading routines in some programs load images onto the screen so fast that animation effects are possible.

If you prefer a 35mm slide show, you can have slides made from your Apple screens. The least expensive—and the

most problem-prone—method is to photograph the screen yourself. Even with a tripod and relatively fast film, chances are the slides will be underexposed, overexposed, or distorted. Inexpensive add-ons such as the Kodak Instagraphic CRT Imaging Outfit can help when you photograph the screen, but for effective, professional slides we recommend the following two options. If you plan to use many slides over an extended period of time, invest in high-quality slide-making hardware such as the Polaroid Palette. If you need an infrequent, limited number of slides, send your diskettes of images to Visual Horizons, who will convert your Apple images to professional-quality 35mm slides (see "Turn Your Screens into Slides," page 35).

If printed output more adequately suits your needs, consider acquiring a printer or plotter and additional software.

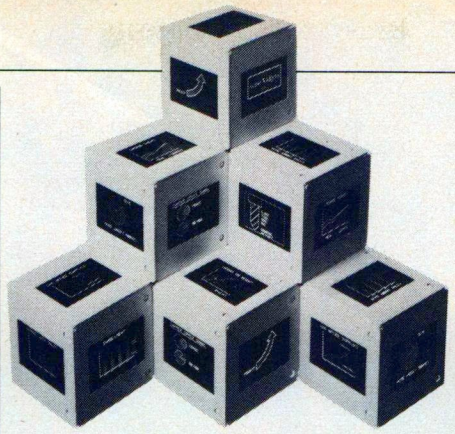
Printers

Letter-quality printers usually produce poor graphics. Dot-matrix printers with graphic capabilities give better results. Some business-graphics programs allow you to dump your screen images to a printer, but they usually work only with specific printers and printer interfaces.

Specialized printer-dump programs—Paper Graphics, the Printographer, and Zoom Grafix are examples—work with almost every printer or printer interface. Paper Graphics and Printographer offer additional bonuses; they allow you to modify the images—before printing them—with such options as cropping, inverting, shrinking, enlarging, framing, packing, and adding text. The main disadvantages of printer-dump software is that you have to quit the program that you are using to create the graphic, and boot the printer-dump disk. After seeing the printout, if you want to make a change in the graphic, you have to reboot the graphics program.

Printer-interface cards, such as Print It and Finger Print, let you interrupt your graphics program to do a quick screen dump and then return to your program.

On a monochrome printer, the colors in your screens translate into patterns, so be sure that the colors you select are distinguishable when printed. Colored ribbons are available for many black-and-white printers, and a program called The Color Printer does a color separation of your image and lets you use colored ribbons with a black-and-white printer to get effective multicolored printouts (see "You Can Print a Rainbow," *A+*, June 1984, page 62). If switching ribbons, registering, and rolling back paper is not for you, a color printer is what you need. Color printers have always been very expensive, but a number of manufacturers—including Canon, Apple, and Epson—have recently introduced more affordable ones. Before purchasing a color printer, find out if the software you use is compatible with it.



If you plan to use many slides over an extended period of time, invest in high-quality slide-making hardware.

Like printers, plotters produce hard copy. Unlike printers, plotters draw fine, smooth lines by dragging a pen across paper. Plotters can't print an Apple screen image; they need instructions to draw the lines. Apple II Business Graphics, among other programs, includes plotter "drivers" that send these instructions to a plotter. For more plotter options, consider specialized plotter software. Prime Plotter is one such program. Inexpensive plotters often let you use only one colored pen at a time, but you can change the pen manually when you want more colors. Plotter commands differ from manufacturer to manufacturer, so be sure the software you choose is compatible with the plotter you have. The Mural "V" Series Plotters draw with ordinary writing pens on any size paper or poster board up to two by three feet.

Overhead Transparencies

Most copy centers can make overhead transparencies from a 35mm slide or printed hard copy. Plotters can draw directly onto a transparency.

Video

Although it's easy to hook your Apple up to a standard television set, the video signal from your Apple is not the standard television signal. You can connect a home or professional videotape recorder to your Apple (through an RF generator) and record the screen image, but you may lose the color, and you won't be able to edit the tape. Hardware such as the Micro Key System from Video Associates, converts Apple video signals into the American standard video signal. Note that the video image this hardware produces does not correct the jagged lines or color problems in the original image.

If you can afford the expense, you can have a videotape pressed onto a videodisc. Interfaces and programming systems from several manufacturers allow your Apple to control the images shown from a videodisc. A big advantage to this type of system is that you can alternate live or still video material with the computer-graphics images. Such presentations are likely to become more popular as the cost of transferring from videotape to videodisc decreases.

Interactive Presentations

You can build interactive presentations—which are controlled by your computer—using computer images alone, 35mm slides, videotapes or videodiscs. Interactive presentations require a program that accepts user input and displays the selected image. Apple Computer's dealer demonstrations of AppleWorks and Apple Logo are good examples of this type of presentation.

▶ FILES

All business programs of any value save information to disk. Different spreadsheet programs, which often look identical on the screen, may save data in very different formats. Even if the data file is composed of standard ASCII characters, the arrangement of the data varies from program to program.

To alleviate some of the problems caused by varying storage formats, Software Arts invented DIF (Data Interchange Format) files for VisiCalc. A DIF file is an ASCII file, but with a clearly defined structure and format. Because the DIF-file format has been widely published, and because VisiCalc is such a popular program, many business programs read and write DIF files even if they normally save their data in another format.

More recently, Microsoft created the Sylk format for Multiplan. If you must transfer data from one program to another, be sure that your programs can read and write DIF or Sylk files.

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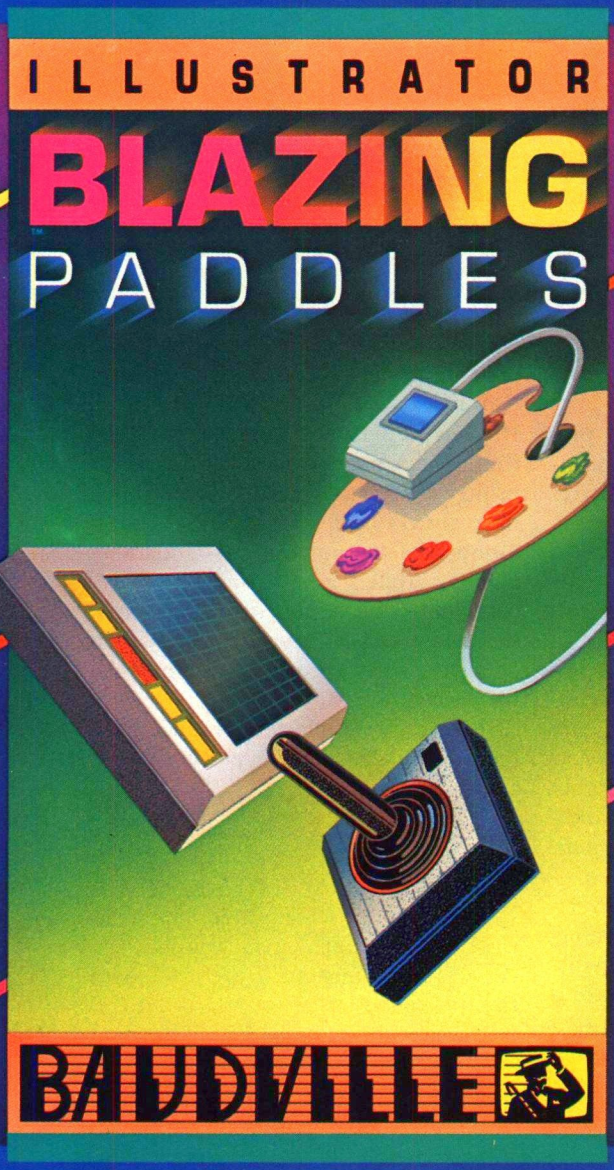

T.M.

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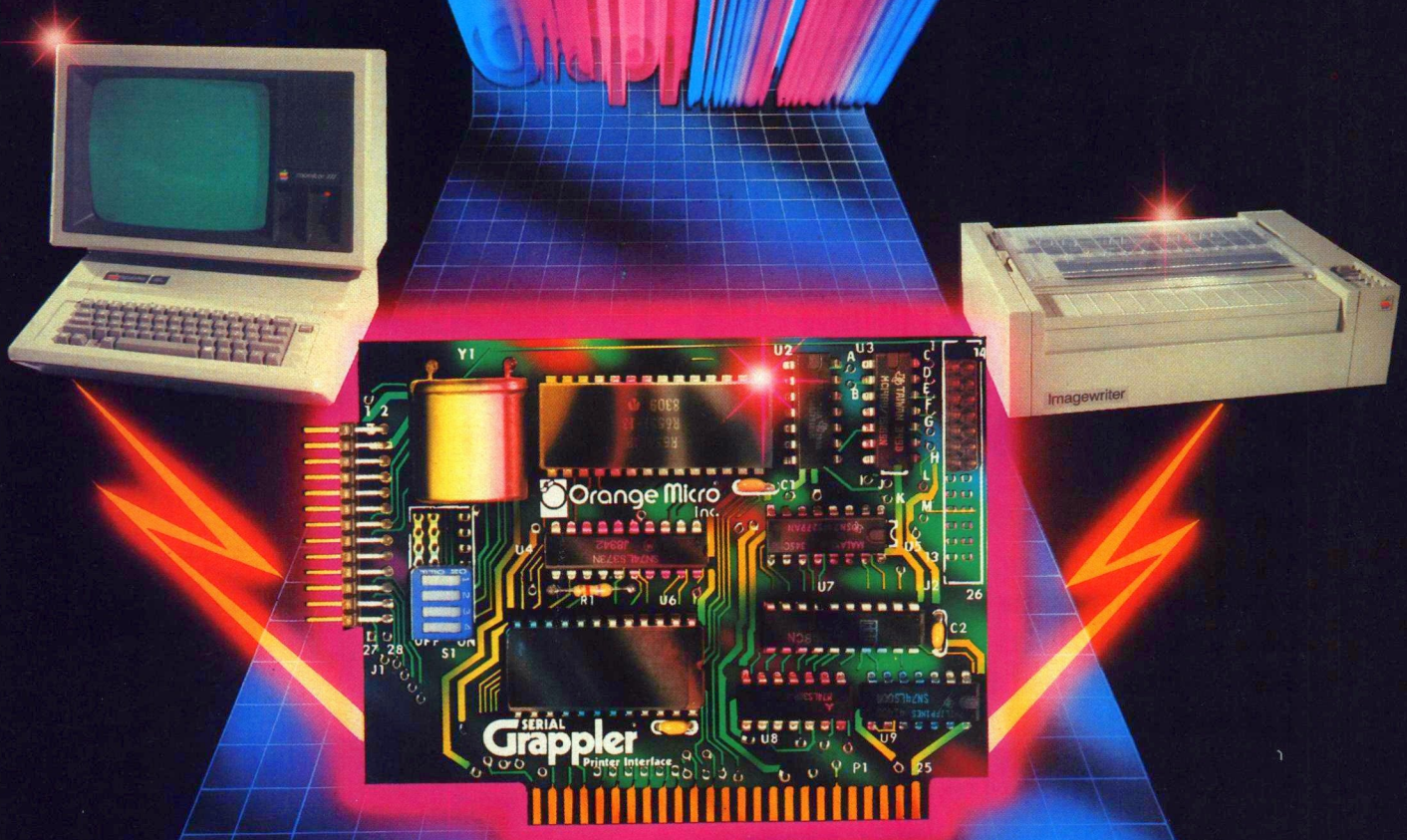

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The new Serial Grappler gives you this same quality and innovation for Apple's versatile Imagewriter, or any Imagewriter compatible printer. When you buy computer equipment compatability is critical, and the Serial Grappler offers the best of both worlds. It's fully Apple compatible, so your software will run without a hitch. But there's more. It's also Grappler + compatible, so all the programs written to use the industry standard Grappler features will run on the Serial Grappler the same way. With the Serial Grappler, your system will work the way you want it to.

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Grappler products are available through Apple dealers and computer stores throughout the world. For more information, visit your Orange Micro dealer today.

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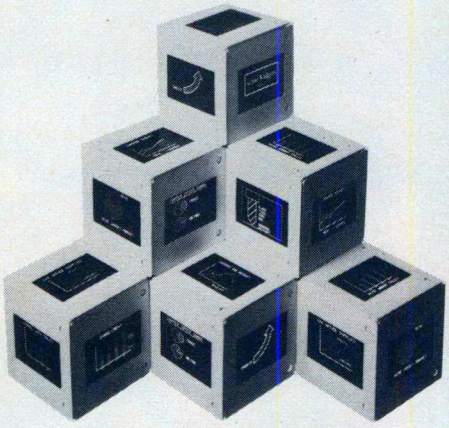
The most sophisticated interactive presentations use light pens or touch screens. These devices allow users to select from a series of options by touching the screen with the pen or finger. One advantage to using these devices is that the computer remains out of sight.

Multimedia

Your Apple can control a bank of videotape players, recorders, and/or slide projectors to create a multimedia presentation. A new hardware product called the Gemini 2002 uses an Apple to create shows involving two to six Kodak 35mm projectors, with tape-recorder synchronization.



Your Apple can control a bank of videotape players, recorders, and/or slide projectors to create a multimedia presentation.

Interactive multimedia presentations can be complicated, and unless you have experience in using electronic media, you probably are better off leaving this approach to the pros.

Summing Up

If you are trying to sell, compare, or analyze a product or a concept, your computer can help you. A well-designed presentation with dynamic graphics often conveys more than does a printed report full of facts and figures, and says it more effectively. So organize your thoughts, create your screens, and let your Apple sell those widgets. ✚

Roberta Schwartz and Michael Callery teach computer graphics at the New School in New York City. They have collaborated on several educational-software projects and are writing a book on Apple graphics for Prentice-Hall.

PRODUCT INFORMATION

Apple II Business Graphics and **Apple III Business Graphics**
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: $175
CIRCLE 551 ON READER SERVICE CARD

Apple Mechanic and **Frame-Up**
Beagle Bros.
4315 Sierra Vista
San Diego, CA 92103
(800) 854-2003
List Price: $29.50 each
CIRCLE 552 ON READER SERVICE CARD

Apple Scribe Printer
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: $299
CIRCLE 553 ON READER SERVICE CARD

Canon PJ 1080A Printer
Canon USA, Inc.
1 Canon Plaza
Lake Success, NY 11042
(516) 488-6700
List Price: $795
CIRCLE 554 ON READER SERVICE CARD

Charts Unlimited
Business Information Systems
5084 Mosiman Road
Middletown, OH 45042
(513) 424-6733
List Price: $195
CIRCLE 555 ON READER SERVICE CARD

The Color Printer
Enhanced Software Products, Inc.
P.O. Box 178
Wantagh, NY 11793
(516) 799-2679
List Price: $69.95
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Complete Graphics System and **Paper Graphics**
Penguin Software
830 4th Avenue
P.O. Box 311
Geneva, IL 60134
(312) 232-1984
List Price: Complete Graphics System, $79.95; Paper Graphics, $49.95
CIRCLE 557 ON READER SERVICE CARD

Digital Paintbrush System
The Computer Colorworks
3030 Bridgeway
Sausalito, CA 94965
(800) 874-1888
List Price: $299
CIRCLE 558 ON READER SERVICE CARD

Epson JX-80 Printer
Epson America
3415 Kashiwa Street
Torrance, CA 90505
(213) 539-9140
List Price: $749
CIRCLE 559 ON READER SERVICE CARD

Finger Print
Thirdware Computer Products
4747 N.W. 72nd Avenue
Miami, FL 33166
(305) 592-7527
List Price: $75
CIRCLE 560 ON READER SERVICE CARD

Fontrix 1.1
Data Transforms
616 Washington Street
Denver, CO 80203
(303) 832-1501
List Price: $75
CIRCLE 561 ON READER SERVICE CARD

Gemini 2002
Pacific Micro Systems, Inc.
160 Gate 5 Road
Sausalito, CA 94965
(415) 331-2525
List Price: $479
CIRCLE 562 ON READER SERVICE CARD

The Graphics Department
Sensible Software, Inc.
24011 Seneca
Oak Park, MI 48237
(313) 399-8877
List Price: $124.95
CIRCLE 563 ON READER SERVICE CARD

Kodak Instagraphic CRT Imaging Outfit
Eastman Kodak Company
Department 412L
Rochester, NY 14650
(800) 445-6325
List Price: $190
CIRCLE 564 ON READER SERVICE CARD

Micro Key System
Video Associates Lab
3933 Steck Avenue, B106
Austin, TX 79759
(512) 343-5761
List Price: $2800
CIRCLE 565 ON READER SERVICE CARD

Multigraph
MicroLab Computer Products
2699 Skokie Valley Road
Highland Park, IL 60035
(312) 433-7550
List Price: $150
CIRCLE 566 ON READER SERVICE CARD

The Mural "V" Series Plotters
United Innovations
Research Development
489 Whitney Avenue
Holyoke, MA 01040
List Price: $600–$1300
CIRCLE 567 ON READER SERVICE CARD

Polaroid Palette
Polaroid
575 Technology Square
Cambridge, MA 02139
(800) 225-1000
List Price: $1799
CIRCLE 568 ON READER SERVICE CARD

Prime Plotter
Prime Soft Corporation
P.O. Box 30
Cabin John, MD 20818
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List Price: $240 plus price of specialized plotter modules
CIRCLE 569 ON READER SERVICE CARD

Print It
Textprint, Inc.
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Needham Heights, MA 02194
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List Price: $199
CIRCLE 570 ON READER SERVICE CARD

Printographer
Roger Wagner Publishing, Inc.
10761 Woodside Avenue, Suite E
Santee, CA 92071
(619) 562-3670
List Price: $39.95
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Scientific Plotter
Interactive Microware, Inc.
P.O. Box 139, Dept. 1
State College, PA 16804
(814) 238-8294
List Price: $25
CIRCLE 572 ON READER SERVICE CARD

Screen Director
Business and Professional Software, Inc.
143 Binney Street
Cambridge, MA 02142
(617) 491-3377
List Price: $150
CIRCLE 573 ON READER SERVICE CARD

Transitions
Penguin Graphics
830 4th Avenue
P.O. Box 311
Geneva, IL 60134
(312) 232-1984
List Price: $49.95
CIRCLE 574 ON READER SERVICE CARD

VisiTrend and **VisiPlot**
VisiCorp
2895 Zanker Road
San Jose, CA 95134
(408) 946-9000
List Price: $300
CIRCLE 575 ON READER SERVICE CARD

Visual Horizons
180 Metro Park
Rochester, NY 14623
(716) 424-5300
CIRCLE 576 ON READER SERVICE CARD

Zoom Grafix
Phoenix Software, Inc.
64 Lake Zurich Drive
Lake Zurich, IL 60047
(312) 438-4850
List Price: $49.95
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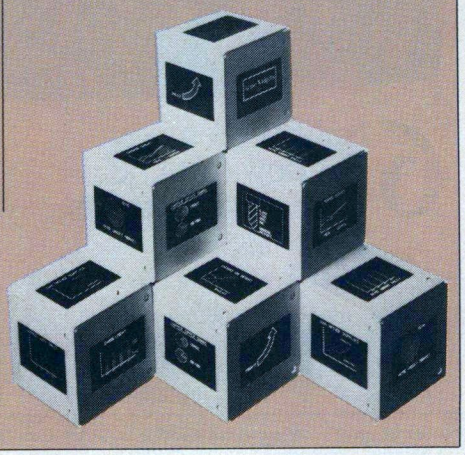

▶ MACINTOSH AND LISA

The Art Department
Business and Professional Software
143 Binney Street
Cambridge, MA 02142
(617) 491-3377
List Price: $195
CIRCLE 578 ON READER SERVICE CARD

DaVinci
Hayden Software
600 Suffolk Street
Lowell, MA 01853
(800) 343-1218
List Price: $49.95
CIRCLE 579 ON READER SERVICE CARD

MacPaint, MacDraw and **LisaDraw**
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: MacPaint, $125 (includes MacWrite); MacDraw, $125; LisaDraw, $395
CIRCLE 580 ON READER SERVICE CARD

Mac The Knife
Miles Computing, Inc.
7136 Haskell Avenue, Suite 212
Van Nuys, CA 91406
(818) 994-7901
List Price: $49
CIRCLE 581 ON READER SERVICE CARD

Mach I and **Mach II Systems** (for modifying the Macintosh)
Professional Data Systems
20 Sunnyvale Avenue
Mill Valley, CA 94941
(415) 383-5537
List Price: $1995–$6495 (price range reflects price of various system accessories)
CIRCLE 582 ON READER SERVICE CARD

Manhattan Graphics
163 Varick Street
New York, NY 10013
(212) 924-2778
CIRCLE 583 ON READER SERVICE CARD

Microsoft Chart
Microsoft Corporation
10700 Northup Way
Bellevue, WA 98004
(206) 828-8080
List Price: $125
CIRCLE 584 ON READER SERVICE CARD

The Slide Show Magician and **McPic**
Magnum Software
21115 Devonshire Street, Suite 337
Chatsworth, CA 91311
(818) 700-0510
List Price: Magician, $59.95; McPic, $49.95
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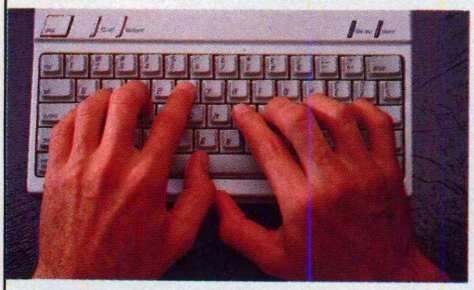

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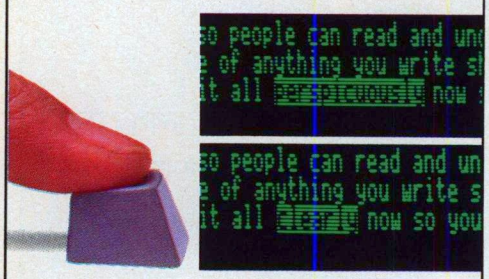

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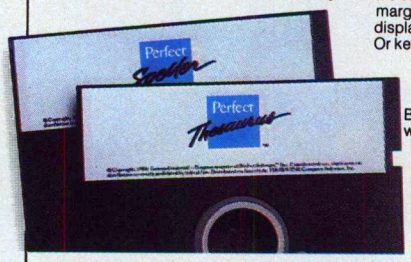
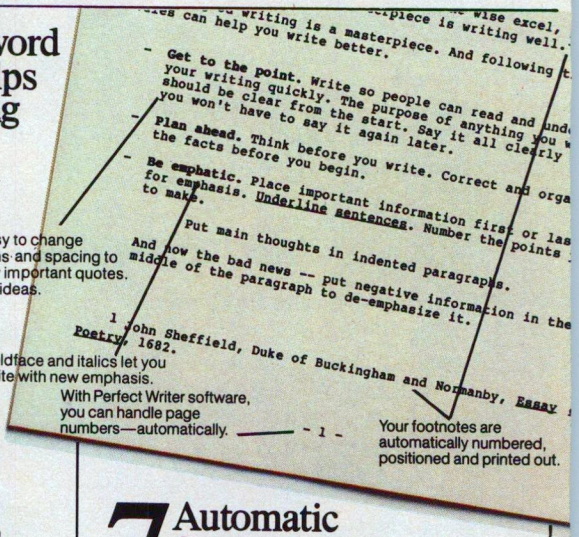
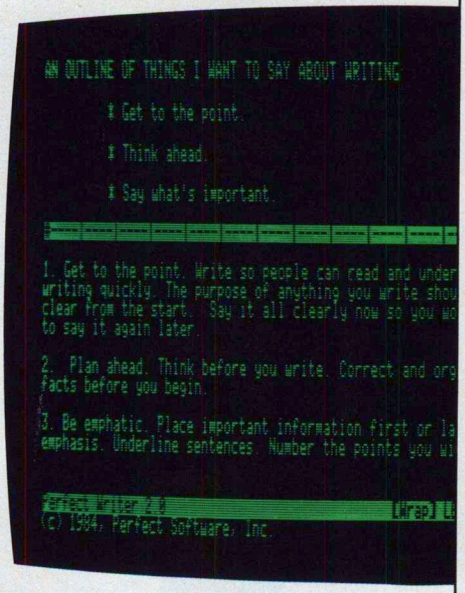




5 A built-in thesaurus to help you choose exactly the right word.

With the Perfect Thesaurus™ disk, the right word for what you're writing is always right at your fingertips.



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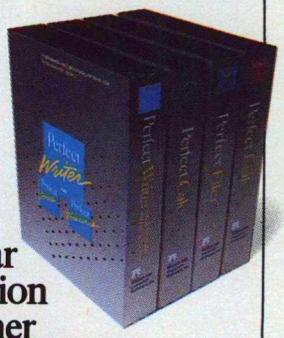

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CIRCLE 441 ON READER SERVICE CARD

▶ **PRESENTATION GRAPHICS**
BY JOHN LINCOLN

Four Screen-Imaging Systems

TURN YOUR SCREENS INTO SLIDES

Have you ever tried to photograph the screen display of your Apple's monitor?

Unless your photography skills are well above average, your pictures were probably out of focus, distorted by the curve of the screen, off-color, inconsistent, or otherwise unsatisfactory. You most likely had the wrong lens, the wrong lighting, the wrong exposure, or the wrong film. You waited three days for the film to be processed, and the results were a far cry from the bright, sharp colors you'd had on the screen.

Finally, you probably either turned the job over to a professional photographer or forgot all about it.

If this experience sounds familiar, you can cheer up now because at least four screen-imaging systems are currently on the market, offering solutions that are simple, consistent, cost-effective—and even artful.

Why Slides At All?

A variety of reasons exists for needing to make photographic reproductions—either prints or slides—of the screen display of your Apple's monitor. For some professionals, preparing transparencies for a projection system is a job. For others, it is a hobby or an art.

You will quickly discover the value of a slide show if you have to speak to a group of people. Visual aids can hold the audience's attention through the dreariest presentation and can transform a good speech into a great one.

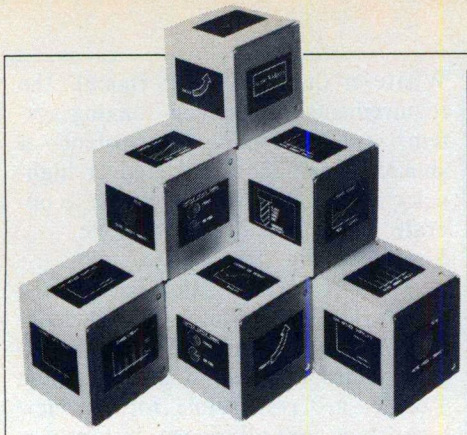
Slide shows are useful both for business and for educational and cultural applications. Computer artists find them to be an effective way to record the work they produce on the screen. Whatever the application, though, the requirements of a screen-imaging system are reasonably consistent—it should be self-contained, deliver high-color fidelity, be simple and fast to operate, and it should be affordable.

Fundamentally Yours

The systems this article covers exist as the result of advances in film technology. The two giants of the photography industry—Polaroid and Eastman Kodak—are responsible for the new technology that allows you instantly to produce computer graphics on slides or prints.

Let's start with the Palette Computer Image Recorder, from Polaroid Corporation, Cambridge, Massachusetts. At a list price of $1799, it should be complete, powerful, versatile, and simple—and indeed it is. The size of a bread box, the Palette consists of a heavy metal case that contains a 4-inch, high-resolution, white-on-black cathode-ray tube.

The Palette's design enables it to convert your Apple's video output into



Visual aids can hold the audience's attention through the dreariest presentation and can turn a good speech into a great one.

hi-res images that can be "colored" according to your own preference. In addition, the system includes a program diskette, a video cable, an RS-232C cable, a power cord, a 35mm auto-wind Minolta XG-A camera body with adapter and control cable, a Polaroid 35mm autoprocessor, and a slide mounter.

The system requires an Apple II, II Plus, or IIe, with at least 64K of RAM, and an Apple Super Serial Card with DIP switches properly set. You need at least one disk drive. Start by attaching your Apple's video-out cable to the Palette's video-in port and attach a second video cable from the Palette to your monitor. Thus, you "loop" your video signal from the CPU, through the Palette, to your monitor. The Super Serial Card provides the necessary RS-232C data-transmission signal and is connected with a cable to the back of the Palette. The Palette is a software-driven device, with a menu-driven command sequence offering coloring options.

The manual makes setting the Super Serial Card for use with the Palette an easy job.

The Palette also comes with a holder/adapter for Polaroid Type 669 film, for exposing instant color prints. A coupon inside the package is redeemable for free packs of Polaroid's color-slide film (Polachrome 35mm) or the company's color-print film (Type 669). Alternately, you may prefer Ektachrome ASA 64, Agfachrome ASA 100, or Fujichrome ASA 100.

Once the equipment is set up and warmed up, boot the software and configure your system—i.e., identify the location of the serial card and set the voltage control. Next, follow the tutorial to make exposures of the color sets on the diskette. Using instant print film allows you to see your results directly after shooting.

Through the use of filters and precisely timed exposures, it is possible to produce images that display up to eight colors from a selection of more than 72 available colors. You can eliminate the familiar problems with Apple color—notably green and violet—by selecting a color set that changes them to white. Furthermore, a Fill mode enhances the detail available on Apple's 280 × 192-pixel resolution—and, if that enhancement is not enough, you can change the background color from black to another color.

In order to manipulate the coloring of a graphics image, you must have the image available on disk and stored as a binary file. Some programs store graphic data this way, and the Palette manual mentions several that offer this essential feature—Apple Business Graphics, Apple Graphics Tablet, Apple Plot, Executive Briefing System, Trendspotter, and VisiPlot.

Polaroid reports that no one has yet written device drivers for the Palette in an Apple mode. Until such drivers are available, you're restricted to coloring graphics that can be stored as binary files.

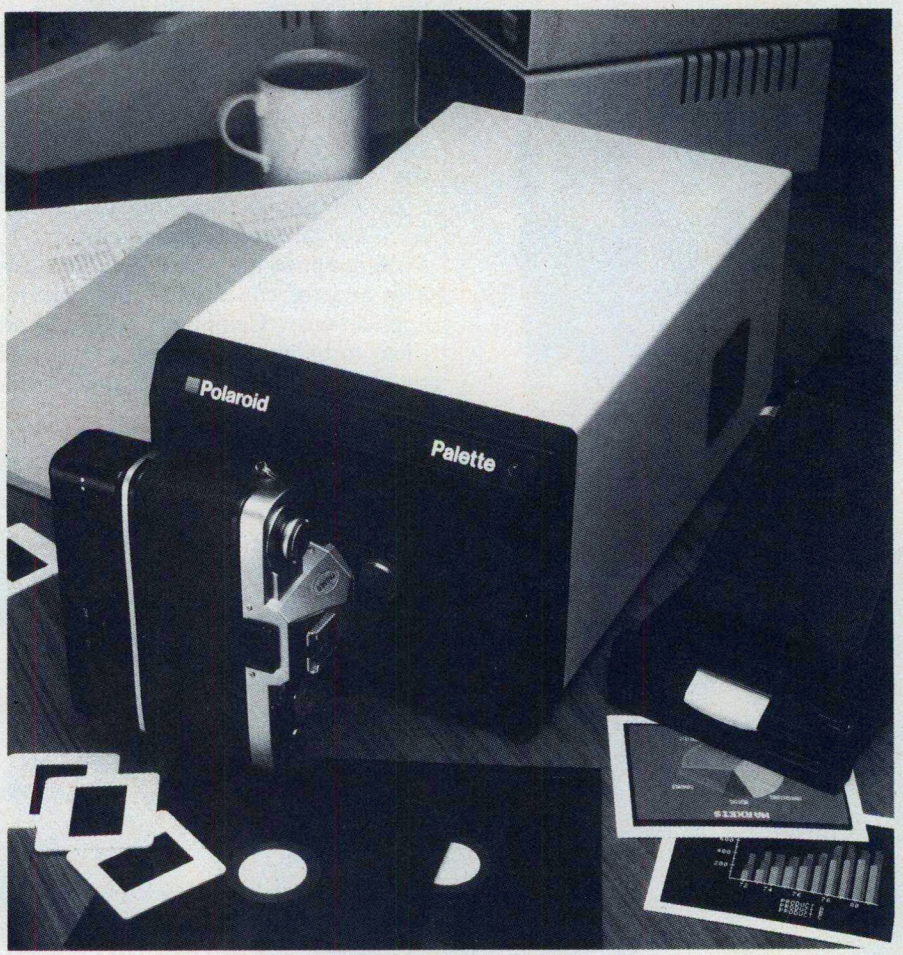
With a Crank, Click, and Turn

The Polachrome film processor for producing "instant" slides is a slick little gadget; even a writer can understand it. After exposing a roll of film (either 12 or 36 exposures), you rewind it into the film can (being careful not to roll it *entirely* into the can), pop it out of the camera, and drop it into the autoprocessor. With a crank, click, and a turn—followed a few seconds later by another click and a crank—the fully developed film is ready to trim and mount within minutes.

Mounting your slides is a matter of mounting the processed film into a holder, inserting a 2 × 2-inch slide mount, advancing the film into the mount, and trimming it off. The colors are clear, bright, faithful, and sharp.

Screenshooter, a camera-and-hood

The Palette Computer Image Recorder, from Polaroid Corporation, can convert your Apple's video output into hi-res images that can be 'colored' as you like.



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device manufactured by NPC (Newton Plastics Company), of Newton Falls, Massachusetts, uses the same film-processing technology described above. For just $169, you can buy this kit and have the means of shooting accurate, consistent pictures directly from your monitor screen.

The kit consists of a molded plastic, cone-shaped hood; built-in relay lens; a Polaroid One-Step camera; and a 35-mm camera mount. There are no hardware requirements, other than your computer and a monitor. Setting up is simple—you load your camera, fasten it to the hood, hold the hood up against your monitor screen, and shoot.

One advantage to the Screenshooter system is that it works with any software. One limitation is that no enhancements are possible. Monochrome monitors produce monochrome pictures; ditto for color, including all the beauty and/or imperfections.

Screenshooter is available with a choice of hood sizes to fit various monitors, including 14-inch, 12-inch, and 9-inch—this last one dubbed the Mac Shooter. A single-lens-reflex camera is recommended, since viewing through the camera lens allows users to see the exact image exposed on the film. You use your camera's built-in metering system to set the correct exposure. Using a zoom lens allows you to frame your image perfectly.

The DATACAM from Photographic Sciences Corporation is another hand-held camera/hood unit for photographing computer screens. The DATACAM is available in two models, the DATACAM I and the DATACAM 35, which cost $545 and $875, respectively. The DATACAM I produces 3 × 4-inch color photographs and uses Koda-

The hand-held DATACAM I from Photographic Sciences produces 3 × 4-inch color photographs.

matic Trimprint instant color film. The DATACAM 35 produces 35mm color slides from Polachrome 35mm transparency film, which you can use with Polaroid's AutoProcessor to develop the slides on the spot.

Load, Aim, and Shoot

Similar to the approach of the Screenshooter is that of the Instagraphic CRT Slide Imager, from Eastman Kodak. This kit is based on Kodak's new, high-quality, color-slide film, which can be processed, trimmed, and mounted for use with 2 × 2-inch 35-mm slide projectors within 15 minutes.

The basic unit, priced at $339, includes a CRT cone, an Instagraphic camera back (for use with either slide or print film), a 35mm camera bracket, a filter holder, and a carrying strap. You must purchase an adapter for the basic cone to fit your particular monitor—choose from 9-, 12-, 13-, and 19-inch sizes, at from $40 to $50 each.

As with the Screenshooter, this system automatically positions the camera on the display screen—an advantage that eliminates the need for a tripod and allows you to shoot your picture in natural lighting.

With the Kodak product, you have the choice of using the 35mm camera mount to expose a normal roll of slide film, or using the special camera back and Instagraphic slide (or print) film. This process offers the unique benefit of exposing and developing color transparencies one shot at a time. By exposing your pictures individually, you eliminate the need to expose a whole roll at a time. A pack of ten pictures costs just $12.95—not bad, as it includes the instant processing.

Making instant slides with Kodak's system could hardly be easier. Kodak's advantage is that you do not handle an entire roll of film, but only individual pictures. Each slide is a separate picture unit that begins processing itself when ejected from the camera back. An instant slide is ready for peeling within 8–15 minutes; an instant color print is ready in about an hour.

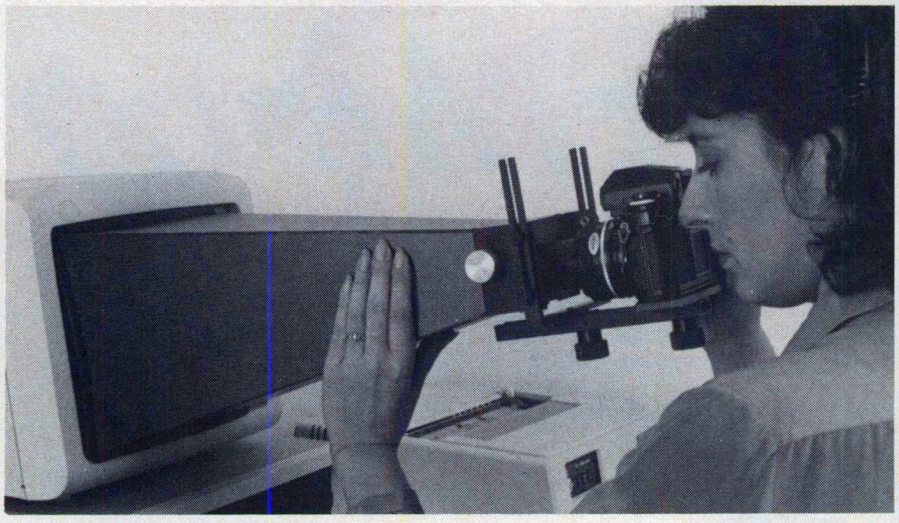
Kodak's Slide Mounter—priced at $74.99—is significantly more expensive than the corresponding accessory device from Polaroid. Since it mounts each frame individually, however, rather than from a roll—as Polaroid does—the process may be just a little more effortless and goof-proof.

Photo Finish

The NPC Screenshooter (with its Polaroid film technology) and the Kodak Slide Imager system are similar only in their outward appearance. A typical exposure for making a transparency with the NPC device is 1–2 seconds; the same shot on Kodak's hardware takes 6–12 seconds. There's a good reason for this difference.

The Screenshooter delivers faithful color reproduction without requiring use of a filter. A typical exposure might be at an aperture setting of 5.6, with a

You can shoot accurate, consistent pictures directly from your monitor screen with Newton Plastics Company's Screenshooter, a hand-held camera and hood device.



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With Eastman Kodak's Instagraphic CRT Slide Imager, you can expose and develop color transparencies one shot at a time, rather than handling an entire roll of film.

shutter speed of 1.5 seconds, if you're using Polachrome film with a speed of ASA 40. Kodak's Instagraphic film, on the other hand, has a film speed of ASA 80, and the system requires the use of a built-in Wratten-85 (orange) filter. The filter adds about one f-stop to the exposure and reduces the effective ASA of the film, creating the need for a longer exposure. A longer exposure can introduce the possibility of "camera shake" in your results, producing a picture that is out of focus.

Certain procedures can help you produce better pictures when shooting directly from a CRT. First, make sure that you set the monitor to medium or dim brightness, as images have a tendency to "bloom" during a longer exposure. If you're shooting from a Macintosh screen, with its black-and-white display, you can achieve excellent results with Polaroid's high-contrast black-and-white transparency film. Kodak has no black-and-white Instagraphic film, but both Polaroid and Kodak recommend using a blue filter with color film to achieve black letters on a pale-blue background.

The NPC system has an advantage over Kodak's, in that its 35mm camera mount is adjustable, which allows you to mount virtually any single-lens-reflex camera with good results. Kodak's mount uses angle brackets and is not as accommodating. Another difference between the two "hoods" is the absence of built-in optics in the Kodak system. Because the NPC Screenshooter contains a built-in lens, it can be used with many cameras. Kodak's system relies on the optics contained in its dedicated, permanently modified Colorburst 50 Instant Camera.

What about results? Quite frankly, the results were excellent with all four film systems. I give Kodak the edge in convenience for allowing us to expose, process, and mount one piece of film at a time—even though the longer exposure times can be a bit troublesome. Polaroid's Palette certainly has the edge in artfulness. In economy and versatility, NPC's Screenshooter excels.

The real winners in the race for excellence in the instant-photo marketplace are the consumers, who can now find high-quality photographic tools for preparing visual aids.

John Lincoln is president of the Santa Barbara Apple Users' Group and uses Apple computers in his own business. He also enjoys writing about Apples, especially the Macintosh.

PRODUCT INFORMATION

Screenshooter
NPC Photo Division
1238 Chestnut Street
Newton, MA 02164
(617) 969-4522
List Price: $169
CIRCLE 625 ON READER SERVICE CARD

Polaroid Palette Computer Image Recorder
Polaroid Corporation
784 Memorial Drive—3
Cambridge, MA 02139
(800) 225-1618
List Price: $1799
CIRCLE 626 ON READER SERVICE CARD

Instagraphic CRT Slide Imager
Eastman Kodak Company
Department 620
343 State Street
Rochester, NY 14650
(800) 445-6325, ext. 236
List Price: Basic unit, $339; cone adapter, $40–$50
CIRCLE 627 ON READER SERVICE CARD

DATACAM I and 35
Photographic Sciences Corporation
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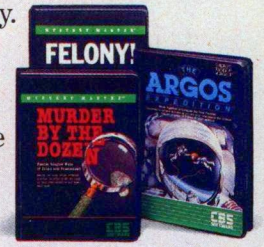

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†This isn't *really* a footnote. Just a reminder that MURDER BY THE DOZEN is also available for the Macintosh computer.

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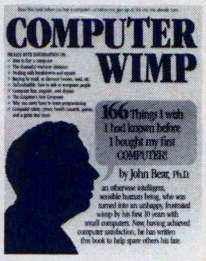
Building your apple bookshelf

The core of an Apple library for beginners and advanced users

Anyone who doubts the popularity of home computers has but to look at the plethora of related literature that has sprung up over the past four or five years. Some of the best computer books are still being published by small, independent houses, but their marketing is no longer relegated to computer stores. Predictably, the publishing giants have discovered the lucrative market for these books, so not only do most bookstores now have a special section for this new body of literature, but many also have subsections dedicated to particular computer models, languages, operating systems, and even specific programs.

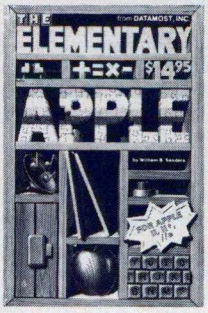


If you have just recently acquired your first computer, you probably already have a small collection of hardware and software manuals, but brace yourself—it's only a beginning.

Manuals are important, but they alone are not going to unravel all the mysteries of your computer. In fact, some manuals are more confusing than enlightening, which is why the market for outside books on specific programs and hardware is sizable.

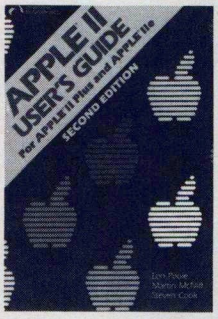
Unlike most other machines we buy, computers are designed for expansion—not all computers, of course, but most of them, and certainly the Apple II, II Plus, and IIe. I bought a II Plus in 1979 and, thanks to added peripherals and memory, that *same* machine is today infinitely more sophisticated and functional than it was five years ago. It didn't just grow better by itself, though. I had to learn how to improve it and, mainly, how to take advantage of what was already there. Attending users' group meetings and reading magazines is educational, but a good book is often the best source of information.

Choosing the right books for your needs can be as confusing a task as selecting the computer itself. So, assuming that you have already done the latter and that it is an Apple II, II Plus, or IIe, we have assembled two modest lists of suggested books, some of which have been around for a while, that you can use as a basis of your Apple library. Two lists, because we realize that some books are too technical for beginners and other books are too basic for advanced users. Of course, some computer books belong on everyone's shelf, so you may want to combine the two lists into one comprehensive library.



Starting Out

Computer Wimp by John Bear is not Apple-specific, but it has to be one of the most entertaining and informative books ever contributed to computer literature. It is designed to aid people who have not yet bought a machine, but its usefulness will not end when your Apple is installed. Its 286 pages are crammed with wry humor and hilarious illustrations that are guaranteed to keep on pleasing even the most advanced computerist. If Bear leaves unanswered any questions that a new computer user might have, I have not found them—he even deals with the subject of becoming a former computer user, a sort of detoxification process.



The Elementary Apple and the *Apple II User's Guide* offer two different approaches to acquainting users with the fundamentals of Apple II computing. Both books show you how to set up and plug in equipment. The former goes on to teach a rudimentary course in BASIC programming, and the latter—a 1983 revised and updated edition of an earlier classic—also delves into BASIC's relationship with machine language and, in general, digs deeper. There is unavoidable repetition here, but these books can easily coexist on the same shelf, and at least one of them belongs there.

They named it *Kids and the Apple*, but this 222-page spiral-bound book is just as much for adults whose Apple has taken them into a second childhood. Written in a simple step-by-step style, it is a basic BASIC tutorial containing lessons, tests, and assignments designed as much to amuse as they are to instruct. *Kids and the Apple* will have you entering and saving games until you are ready to create your own.

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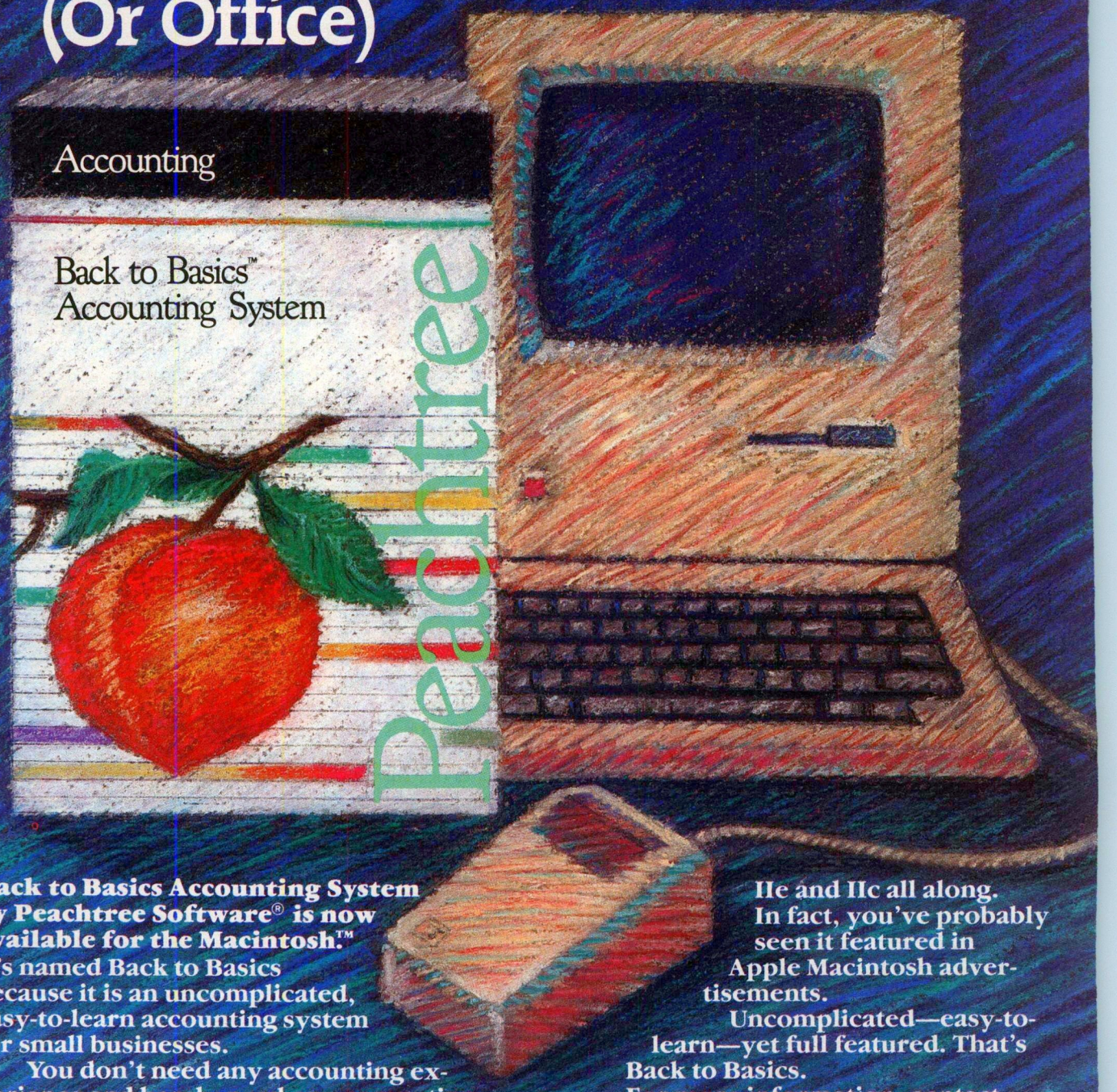

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Getting Serious

If *Kids and the Apple* gives you a taste for creating games and graphics programs, Jeffrey Stanton's *Apple Graphics and Arcade Game Design* is a book you may want to add to your Apple shelf. But don't consider this book if you are just going to dabble at it, for although it does not require that you have prior experience in assembly-language programming, it expects you to learn it.

It also necessitates the use of a decent assembler program. To facilitate the learning experience, the publisher offers, on disk, a bit-mapping utility and several code listings from the book for a nominal $10 each, plus $1.50 postage.

Apropos assembly language, we recommend to serious programmers a rather weighty volume entitled *6502 Assembly Language Programming* by Lance A. Leventhal. Most of us will never dig this deeply, but if you really want to explore the interior of your 6502 processor, this book is the way to go. Be forewarned, however, that you

had better enter with considerable prior knowledge of computers and how they work.

While you can run your Apple II without having any knowledge of assembly language or, for that matter, BASIC, you must know something about DOS (disk-operating system) commands, if for no other reason than to boot, format, and copy diskettes. Apple Computer's own manuals go well beyond teaching what beginners need to know, but two books from Quality Software, *Beneath Apple DOS* and *Beneath Apple ProDOS*, go even further.

OK, so you've mastered assembly language, written the Great American Program, and are getting ready to put it on the market—what to do now? Take a look at *Legal Care for Your Software*, which is written by an attorney, Daniel Remer. You won't need a law degree to understand it. This book is a must for software developers and publishers who wish to protect their products without having to go into debt for legal expenses. It tells you all you need to know about national and international software laws, patent requirements, trademark registration, copyrights, and the like. It also contains sample contracts and agreements to cover just about every facet of software development and publishing.

When it comes to business applications, many Apple II users find themselves all but abandoning DOS in favor of CP/M, a more universal operating system, for which some outstanding software exists. Apple II-series computers do not come equipped with CP/M, but it is easy to add in the form of a card that fits inside the machine. These cards—and a variety of them is now available—usually come with documentation explaining the operating system and how it works.

Although many CP/M users are content to boot up WordStar, Super-

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ORDERING INFORMATION: (board model nos.)

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ColorMaster	VCB-8+	VCB-8e	$139.00
Softswitch	VSS-80	don't need	45.00
SwitchPlate	VSP-80	don't need	30.00
Kaleidoscope	VCB-24+	VCB-24E	199.00
FRANKLIN	**Ace 1000, 1200 (rev. B)**	***Monochrome Ace 1000,100**	**Price**
ColorMaster	VCB8-EF		$169.00
ColorMaster		VCB-8F	139.00
Kaleidoscope	VCB-24EF	VCB-24F	219.00
SwitchPlate	VSP-80	VSP-80	30.00

(*earlier models that did not have color)
Monitor connector, wired to cable: $20.00

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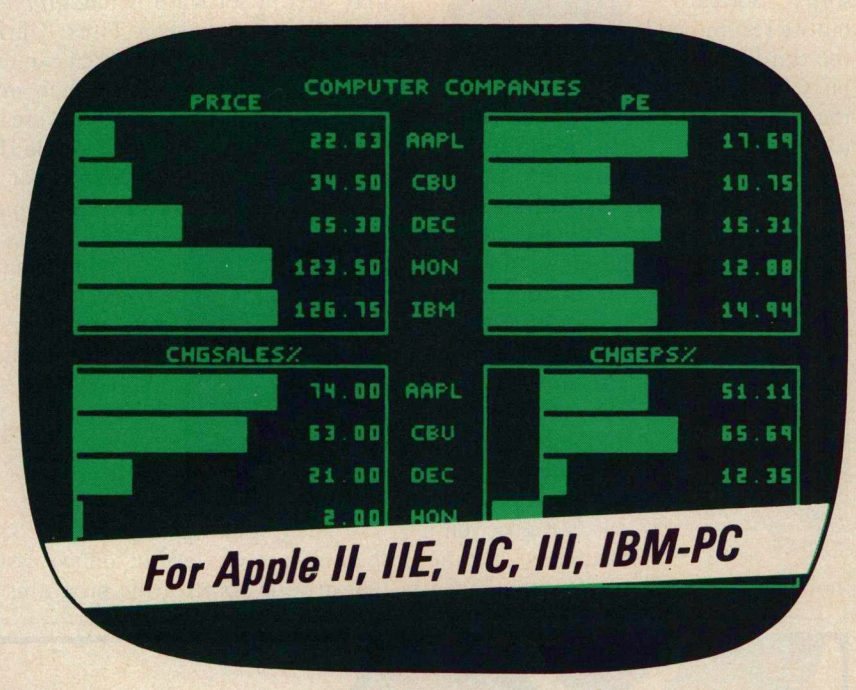

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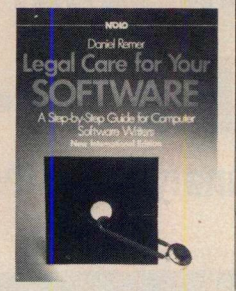
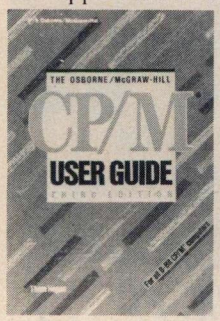
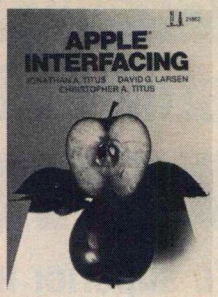
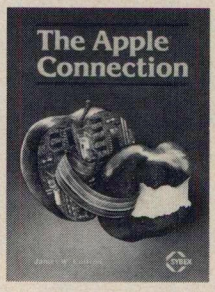
Calc, Multiplan, or dBASE II and let it go at that, others tackle CP/M with the determination of a child on an Easter egg hunt. For them there is Thom Hogan's *CP/M User Guide*. It is available in various editions — including one specifically designed for Microsoft's Softcard— but we recommend the third edition, which is geared to 8-bit CP/M computers and covers both the CP/M 80 (2.2) and the CP/M Plus (3.0) versions of the operating system.



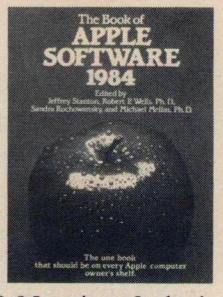
Not all Apple tinkering involves software. Most of us take advantage of our Apple's hardware-expansibility, but often we do so in an unadventurous way. We simply purchase peripherals such as printers, disk drives, and modems, and plug them in. Even store-bought add-ons can give you a devilish time, though, when you try to make them work with the software and hardware you already have. Sometimes the remedy is not as easy as pushing a few DIP switches. You may have the wrong cable (looks can be deceiving), or you may need a software patch. *Apple Interfacing* by Jonathan Titus, Christopher Titus, and David Larsen can teach you to pinpoint and solve such minor problems, but it is also for creative types who want to use their Apple II-series computer for such tasks as controlling other electronic or electromechanical devices or for monitoring external events. If you want your Apple to control home appliances or a security system, take a look at James W. Coffron's *The Apple Connection*.







Finally, your Apple is only as good as the software you feed it, and we assume that at least some of the programs you use will be commercial application software. That being the case, you will find *The Book of Apple Software* series to be a handy guide. With some illustrations of screen displays, these books contain reviews and assessments of every kind of Apple software (and a modicum of hardware) imaginable; they are published annually, and I have used them since 1980. Just as some software lingers on store shelves year after year, so does coverage of long-lived programs in these guides. Even though you'll notice some repetition from year to year, the books are still worth the $19.95 price. I don't agree with all the evaluations in the series, and, I suspect, neither will you. The reviewers (70 of them worked on the 1984 edition) are pretty thorough, though, and the book's format is such that most questions are answered.



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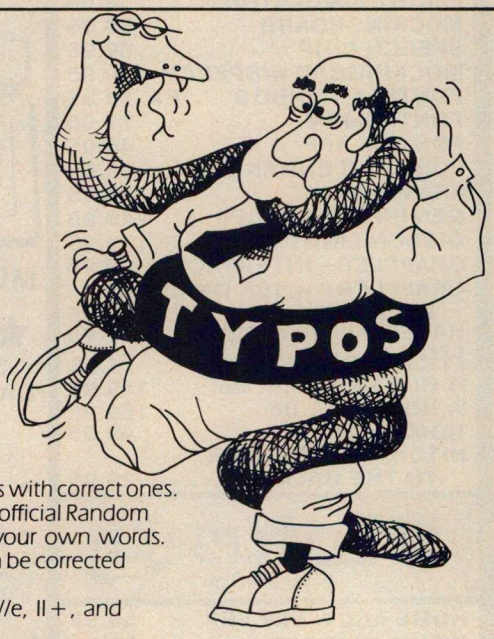

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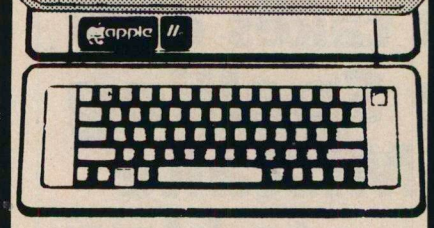

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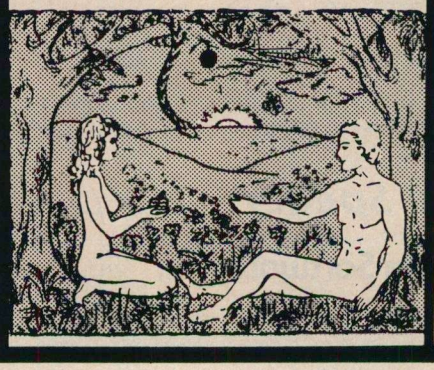

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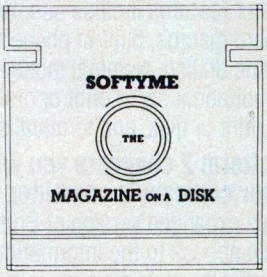

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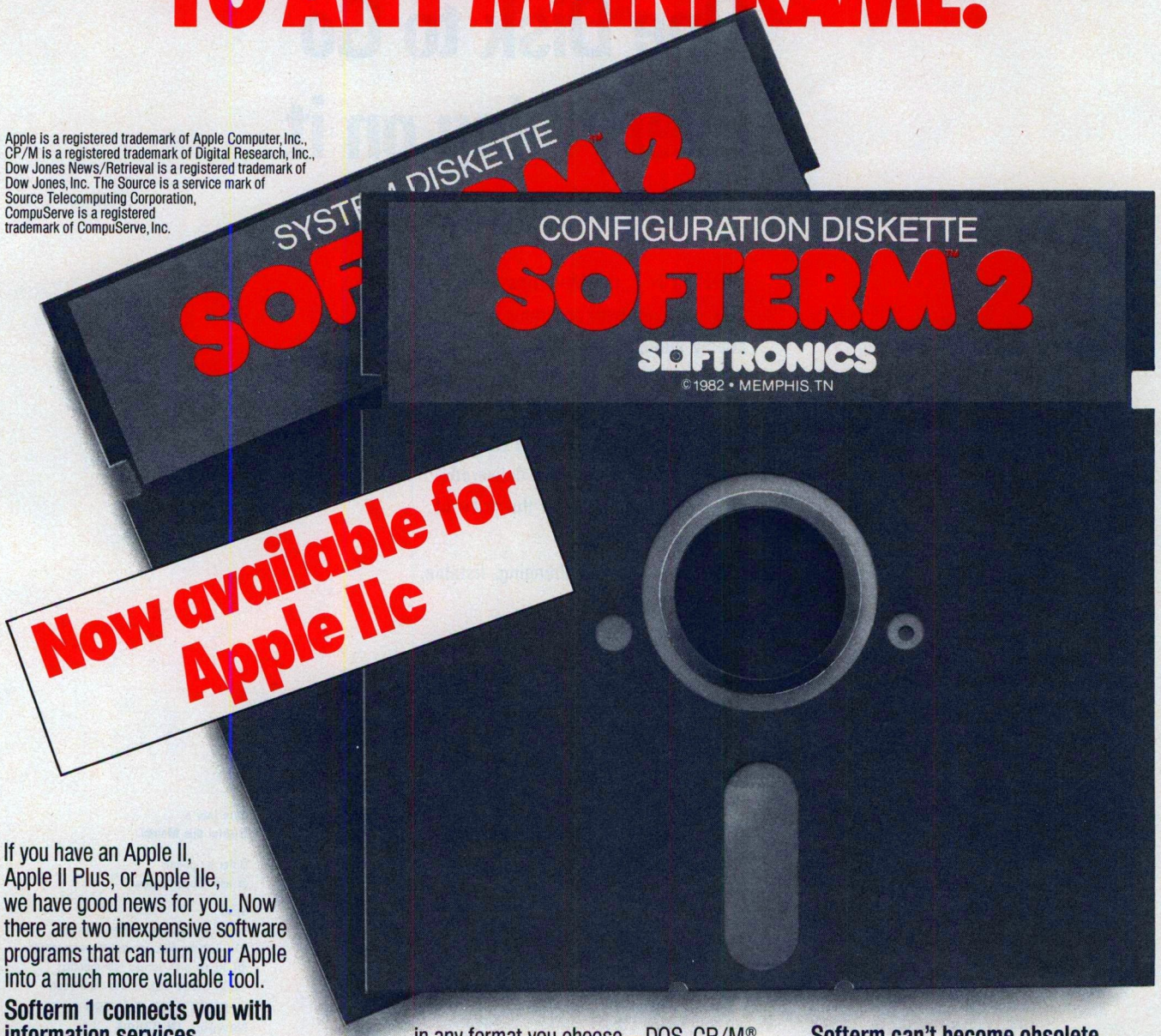

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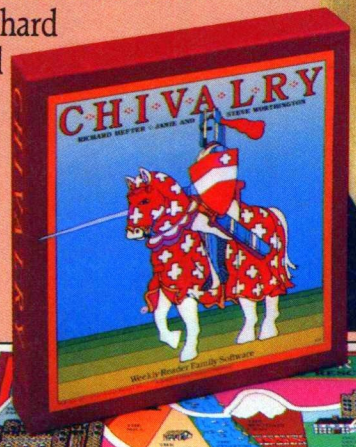

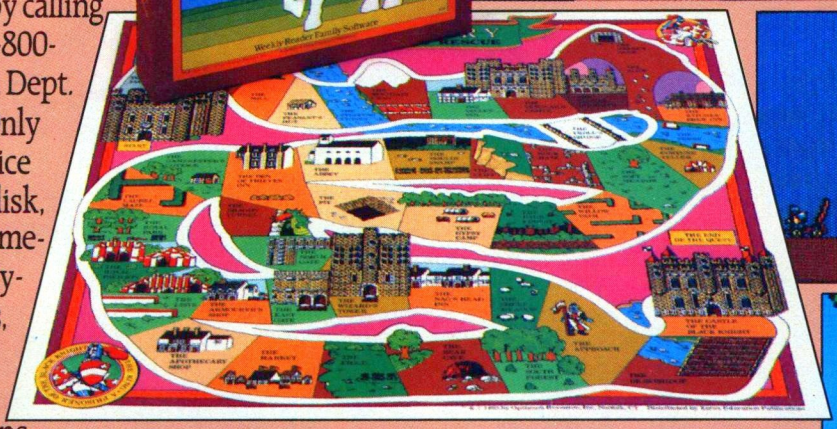

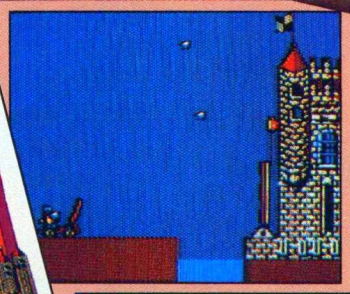

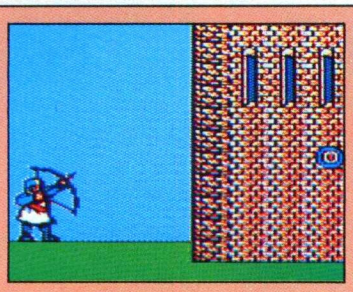

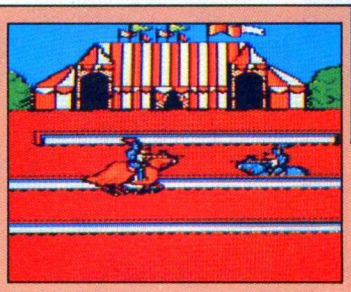

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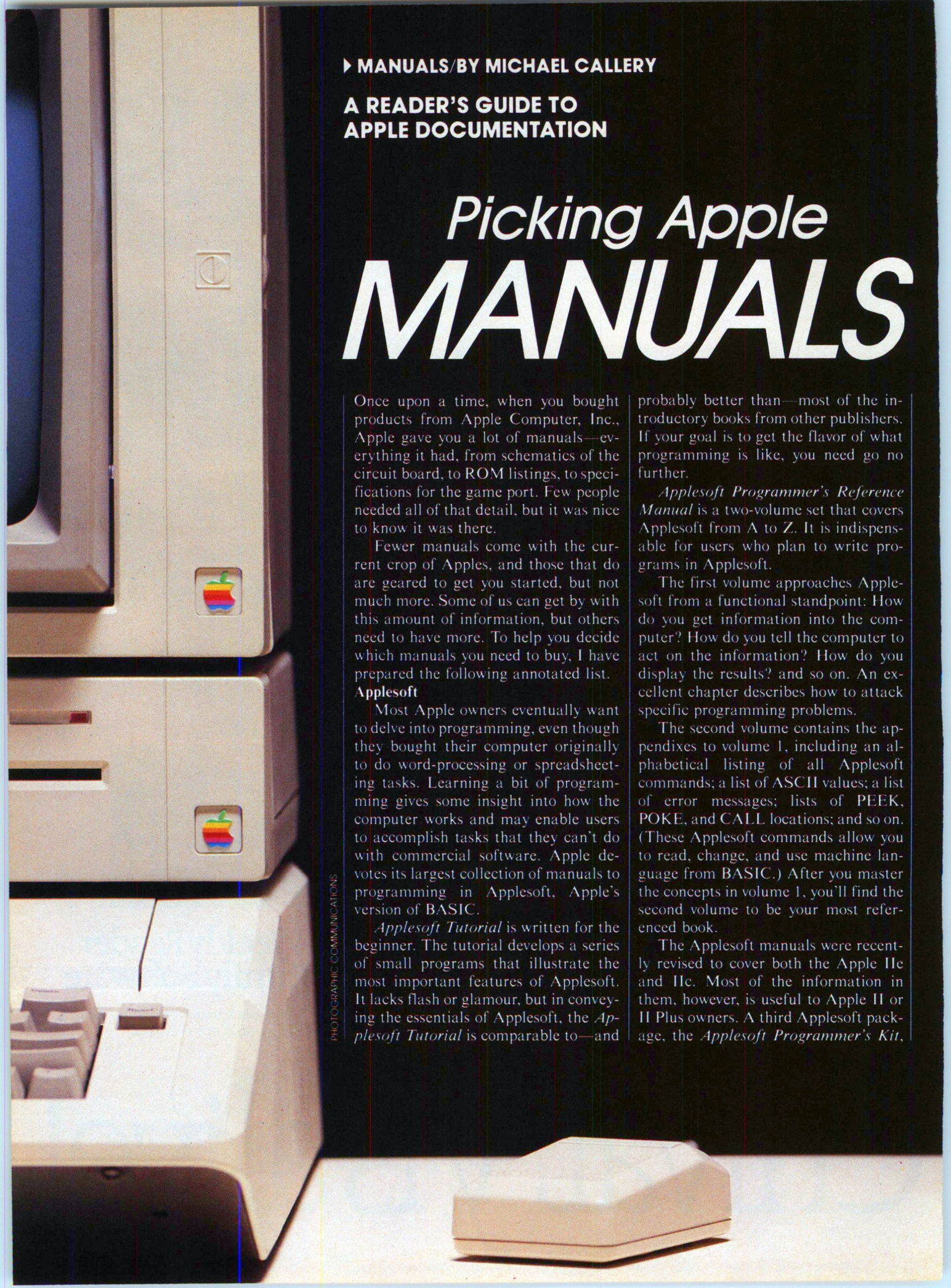

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A READER'S GUIDE TO APPLE DOCUMENTATION

Picking Apple MANUALS

Once upon a time, when you bought products from Apple Computer, Inc., Apple gave you a lot of manuals—everything it had, from schematics of the circuit board, to ROM listings, to specifications for the game port. Few people needed all of that detail, but it was nice to know it was there.

Fewer manuals come with the current crop of Apples, and those that do are geared to get you started, but not much more. Some of us can get by with this amount of information, but others need to have more. To help you decide which manuals you need to buy, I have prepared the following annotated list.

Applesoft

Most Apple owners eventually want to delve into programming, even though they bought their computer originally to do word-processing or spreadsheeting tasks. Learning a bit of programming gives some insight into how the computer works and may enable users to accomplish tasks that they can't do with commercial software. Apple devotes its largest collection of manuals to programming in Applesoft, Apple's version of BASIC.

Applesoft Tutorial is written for the beginner. The tutorial develops a series of small programs that illustrate the most important features of Applesoft. It lacks flash or glamour, but in conveying the essentials of Applesoft, the *Applesoft Tutorial* is comparable to—and probably better than—most of the introductory books from other publishers. If your goal is to get the flavor of what programming is like, you need go no further.

Applesoft Programmer's Reference Manual is a two-volume set that covers Applesoft from A to Z. It is indispensable for users who plan to write programs in Applesoft.

The first volume approaches Applesoft from a functional standpoint: How do you get information into the computer? How do you tell the computer to act on the information? How do you display the results? and so on. An excellent chapter describes how to attack specific programming problems.

The second volume contains the appendixes to volume 1, including an alphabetical listing of all Applesoft commands; a list of ASCII values; a list of error messages; lists of PEEK, POKE, and CALL locations; and so on. (These Applesoft commands allow you to read, change, and use machine language from BASIC.) After you master the concepts in volume 1, you'll find the second volume to be your most referenced book.

The Applesoft manuals were recently revised to cover both the Apple IIe and IIc. Most of the information in them, however, is useful to Apple II or II Plus owners. A third Applesoft package, the *Applesoft Programmer's Kit*,

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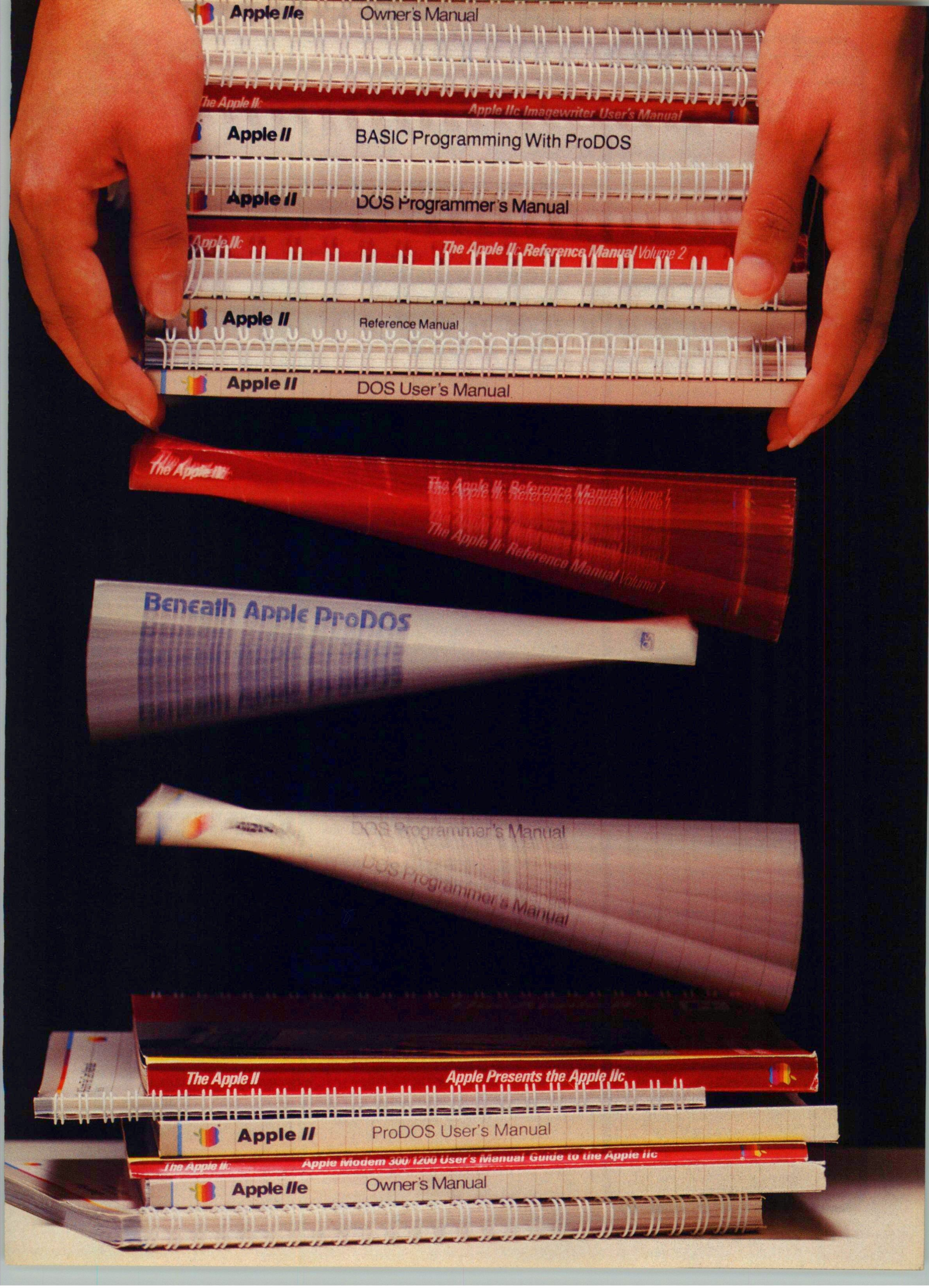
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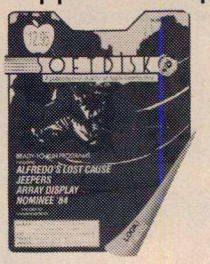

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is also available. It includes a collection of useful utilities for Applesoft programmers, which I recommend highly.

DOS and ProDOS

The *Dos 3.3 User's Manual* and *ProDOS User's Manual* are the instruction manuals for the DOS 3.3 User's Disk and the ProDOS User's Disk. Apple provides a disk of utility programs with its disk drives so that beginners can use the Apple disk-operating system (DOS) without learning difficult commands.

Apple's manuals have always been respected in the industry for their style and thoroughness.

If you have an older Apple Disk II, you received with it a DOS 3.3 System Master, which is equivalent to the DOS 3.3 User's Disk. Currently, Apple Disk II owners receive the ProDOS User's Disk and Manual with their systems. Until DOS 3.3 fades from sight, every Apple owner will probably want both of these disk/manual sets. Apple IIc owners can use these utilities and the information in the books, but virtually all functions provided here are also included on the IIc System Utilities disk and manual.

The *DOS Programmng Manual* and *BASIC Programming with ProDOS* are companion volumes that explain in detail how to use these two Apple operating systems. The manuals are similar, and the program examples are equivalent. Even if you don't plan to program in BASIC, these books will supply you with all sorts of essential information. For example, the manual that comes with the Apple IIc does not contain any information on how to catalog a disk. *BASIC Programming with ProDOS* describes the difference between CATALOG and CAT commands and explains what the information presented by each command means. If you are a new Apple owner using ProDOS software, you should have *BASIC Programming with ProDOS* in your library. If you are a BASIC programmer, you'll appreciate the utilities that come on the disk with the ProDOS manual. You'll need both books if you are also using DOS 3.3 software or are planning to write BASIC programs to access data created with DOS 3.3 software.

The *ProDOS Technical Reference Manual* is another manual for advanced users. It contains a complete technical description of ProDOS and is specifically intended for programmers who utilize ProDOS from assembly language. The package also includes a disk, the ProDOS Exerciser, that allows users to experiment with ProDOS parameters without writing entire programs.

Miscellaneous Manuals

The manuals that come with most peripherals and interface cards tend to be more technical than what general users need. The AppleMouse II is a case in point. The manual that accompanies the mouse describes the installation and operation of the device, explains the operation of MousePaint, and provides technical information for programmers who want to use the mouse in their programs. You may need only some of this information, but it is all there.

The *80-Column Text Card Manual* and *Extended 80-Column Card Supplement* apply only to the Apple IIe and IIc computers. Apple IIe owners receive the manuals when they purchase an 80-Column Text Card or an Extended 80-Column Card. Apple IIc owners, however, must purchase the manuals separately, since the 80-column card is built into the computer. Programmers working on Apple IIc computers may need the information in these manuals, which, like other Apple technical manuals, contain useful tips and program fragments. Although the manuals are written for assembly-language programmers, Applesoft programmers will find some mysteries cleared up. (For example: Why doesn't my GET work when the 80-column card is active? How can I tab to column 60? and so on.)

The *Reference Manual for the IIe* and *Reference Manual for the IIc* are essential references for users who write assembly-language programs, build hardware add-ons, or crave to know nearly everything about the hardware and the ROM operating system of their computer. The manuals are well written and quite technical, and thus they are most useful to intermediate or advanced programmers.

Rounding Out the Shelf

Four books from other publishers will complete your shelf of Apple documentation. These books contain information that is scattered throughout the Apple manuals or missing from the materials the public can purchase.

The *Apple II User's Guide* by Lon

Poole is a complete reference manual. It organizes for easy use the information from the Applesoft reference and DOS manuals; and for the beginner, this book, along with the *Applesoft Tutorial*, is enough to start programming in Applesoft. The *Apple II User's Guide* does not specifically cover the Apple IIc, but most of the information is applicable to the IIc.

All About Applesoft, edited by Val Golding, contains a multitude of useful routines and the kind of information that only a group of dedicated hackers working overtime could dig up. Their labors, published as articles in *Call-A.P.P.L.E.* magazine, have been put together in an essential book for all serious Applesoft programmers. A disk containing the programs is available to members of A.P.P.L.E.

Beneath Apple DOS by Don Worth and Pieter Lechner completes the information found in the Apple DOS manuals. The book provides very technical information about the disk-operating system. A new volume, *Beneath Apple ProDOS*, follows in the footsteps of the Apple DOS edition, providing technical information for those who want to program under ProDOS.

What's Where in the Apple by William F. Luebbert dissects the Apple computer, logging and identifying the function of every memory location. This book is not very useful to beginners, but becomes invaluable as users gain experience. The current edition contains a lengthy guide to help you use the information, and a supplement that covers the Apple IIe. At this writing, the Apple IIc is not included.

Among veteran Apple owners, the unbundling of documentation and hardware is of some concern. We needed the massive amount of information that came with our systems because we had to write programs to do almost anything. Today, however, new users can rely on commercial software to accomplish most—if not all—tasks. Apple's manuals have always been respected in the industry for their style and thoroughness, and the new manuals continue in this tradition. Moreover, because users can purchase the manuals separately, they need not pay for information they cannot use. +

▶ FURTHER INFORMATION

Manuals from Apple
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014-2094
(408) 996-1010

Apple IIe Owner's Manual
free with system
Apple IIc Owner's Manual
free with system
Applesoft Tutorial, $30
Applesoft Programmer's Reference Manual, $25
Applesoft Programmer's Kit, $50
DOS 3.3 User's Manual, $20
ProDOS User's Manual (part of ProDOS User's Kit), $40
DOS Programming Manual, $20
BASIC Programming with ProDOS, $30
ProDOS Technical Reference Manual, $25
80-Column Text Card Manual, $20
Extended 80-Column Card Supplement, $15
Reference Manual for the IIe, $30
Reference Manual for the IIc, $50
CIRCLE 501 ON READER SERVICE CARD

Other Manuals
The Apple II User's Guide
By Lon Poole
Osborne/McGraw Hill
630 Bancroft Way
Berkeley, CA 94710
$17.95
CIRCLE 502 ON READER SERVICE CARD

All About Applesoft
Edited by Val Golding
Apple Puget Sound Program
Library Exchange (A.P.P.L.E.)
21246 68th Avenue South
Kent, WA 98032
$7; disk, $16.95 (available to members)
CIRCLE 503 ON READER SERVICE CARD

Beneath Apple DOS
By Don Worth and Pieter Lechner
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CIRCLE 504 ON READER SERVICE CARD

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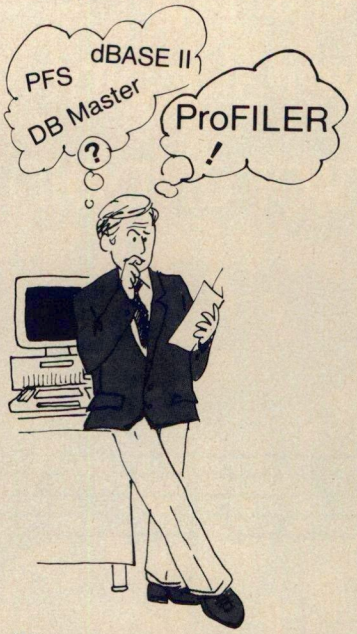

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Reports to Screen or Printer –NEW	YES	NO
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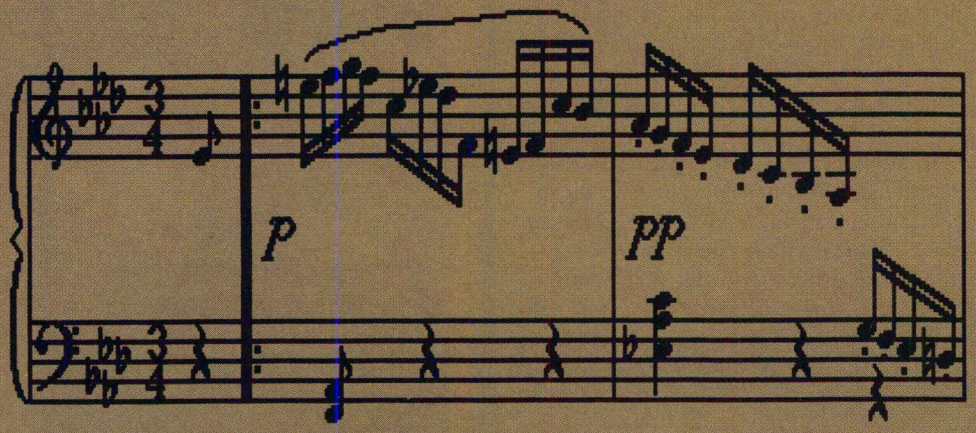

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FONTS FOR ROBOTS

small block letters for charts and graphs.....

COURTESY OF DATA TRANSFORMS

▶ **SOFTWARE**
BY ROBERTA SCHWARTZ

MOVE OVER, MAC

FONTRIX GIVES YOU MACPAINT DOCUMENTS FROM AN APPLE II

Has the arrival of the Macintosh computer filled you with envy? Have you seen the documents the Mac can make and wished your computer could create them? Would your business or organization benefit from more dynamic bulletins?

If your answer to any of these questions is yes, then read on, and I'll show you how your Apple II Plus, IIe, IIc, or III can tackle a new challenge. The Macintosh has MacWrite and MacPaint; the Apple II and III families have Fontrix.

Fontrix

Fontrix, from Data Transforms, is a high-resolution-graphics utility. It lets you combine text with images to create graphics 16 times larger than those the screen can display and lets you print them out as one full-page graphic. I was using Fontrix with my Apple II Plus to create fliers and newsletters—combining different fonts and pictures—when a macintosh was spelled with a *k* and was something you wore.

Look at figures 1 and 2 on the following pages. Figure 1 is part of a MacPaint document, and figure 2 is a section of the printout of a Fontrix "Graffile." You too can create documents that rival those of the Mac.

Fontrix comes on an unprotected

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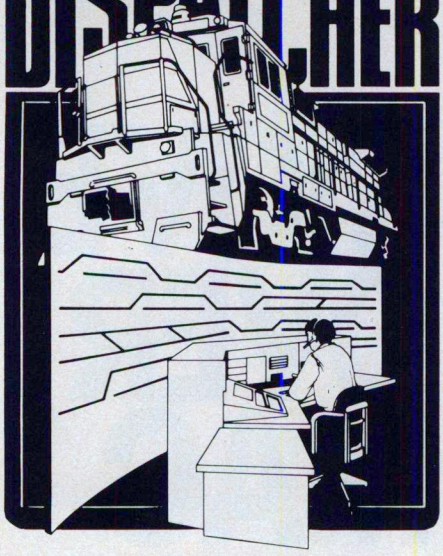

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CIRCLE 434 ON READER SERVICE CARD

disk with many utilities, including an excellent font editor and graphics dump. An illustrated, 130-page loose-leaf manual contains tutorials, reference sections, and commands on a handy card. The entire manual was created and printed with Fontrix.

The program is menu-oriented and foolproof. Fontrix accepts input from the keyboard and the AppleMouse II,

Some of the things you can create are bar and pie charts, advertisements, and newsletters.

as well as paddles, joysticks, trackballs, and graphics tablets.

The graphics dump works with more than 30 printers and with just about any printer-interface card.

With the font editor, which permits 32 × 32-pixel characters, you can easily create your own fonts or edit the ones provided. For those users who want a variety of impeccably designed typefaces, Data Transforms periodically publishes Fontpaks, which comprise sets (each Fontpak contains ten new fonts) of icons, foreign alphabets, music symbols, and electronics symbols—just about anything you want or need (see samples on pages 58 and 59).

Since this article is a tutorial and not a review, I won't discuss the software in detail. Instead, let's concentrate on the Graphic Writer and Graffiles.

Graffiles

You can use Fontrix to create standard hi-res graphics, or you can create a Graffile—a file consisting of many graphics screens. The Apple hi-res screen is the equivalent of 5 horizontal units × 6 vertical units. A Graffile can constitute up to 80 units horizontally and up to 96 units vertically. You start a Graffile by inputting the size you want it to be. The printer you dump your Graffile to determines its size. An Epson MX-80, for example, prints a Graffile up to three screens wide and four screens long. Once the parameters are set, you are ready to "write" on your graphic.

Graphic Writer's 27 options include drawing and writing with an assortment of brushes and fonts, erasing, inverting, working within windows, and selecting from 32 different background and foreground colors and patterns. At any time, you can go to the menu to load a different font (the master disk contains 11 fonts) or graphic (any graphic, created with any software),

Figure 1 (left): A MacPaint document
Figure 2 (below): A Fontrix Graffile

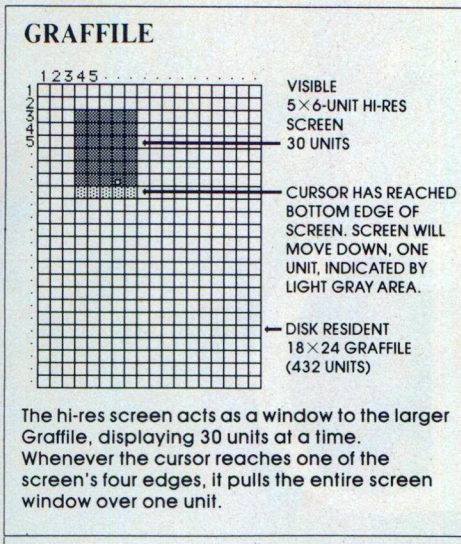

Figure 3: One unit goes out of view and is written to disk, and another unit is read from the disk and appears on the screen.

and then return to your Graffile.

As you work, moving the cursor off the edge of the screen, the screen scrolls one row of units. The information that goes out of view is written to disk, and the new information is read from the disk and appears on the screen (see figure 3). Horizontally, the scroll of one unit is equivalent to one-fifth of the hi-res screen, and vertically it is equivalent to one-sixth of the screen. Depending upon the size of your Graffile, you can scroll and scroll and find you still have more space ahead of you.

Scrolling from screen to screen, it is easy to get lost in the Graffile because there is no way to see the entire page at one time.

To avoid this problem, you can create a master Graffile with nothing on it but marks indicating where each screen ends—horizontally and vertically—as well as half-screen marks. When you start a new Graffile, open a copy of this master. As you move through your file, the marks will pinpoint your position on the entire page.

To create the newsletter illustrated in figure 2, I opened a copy of my master Graffile, which was 18 units (3½ screens) wide and 24 units (4 screens) long. I scrolled to the section of the Graffile where I wanted to place the first picture, went to the menu and selected Load a Graphic. The picture of the tea party, a full-page hi-res graphic created with another program, loaded onto the screen, and I returned to my Graffile. I scrolled around, typing in the newsletter title and the headlines. I created the graphic in the center column using a pictorial font called Leaves. After loading in the last picture, I scrolled from screen to screen, changed fonts, typed in the copy, and added borders and other details. To get the text in columns, I used the Window option.

When the Graffile was complete, I "closed" it, went to the main menu, and selected PRINT GRAPHICS. After choosing a printing option from the many provided, I sat back and watched my Epson print a newsletter. A full-page Graffile takes about five minutes to print.

The variety of fonts and the graphics capabilities of Fontrix allow you to create documents that are even more elaborate than the newsletter in figure 2. You have only to look at some of Data Transforms advertisements, all done with Fontrix, to appreciate the power of this program. Some of the things you can create are posters, certificates, bar and pie charts, letterheads, announcements, résumés, diagrams, greeting cards, needlework designs, advertisements, floor plans, and newsletters.

Working with the Macintosh is easier and faster than working with Fontrix, but, with patience, there is little that can be done with one that can't be done with the other.

We bought our Apple II computers because we thought they could do just about anything any home computer could do—and they can. With Fontrix, we can even tell the Macintosh to move over. +

Roberta Schwartz is a free-lance computer-graphics artist. She teaches at The New School in New York City and is currently coauthoring a book on Apple computer graphics.

PRODUCT INFORMATION

Fontrix 1.1
Data Transforms
616 Washington Street, Suite 106
Denver, CO 80203
(303) 832-1501
List Price: $75; Fontpaks, $20 each
Requires: Apple II Plus, IIe, IIc, or III (in Emulation mode); 48K RAM; DOS 3.3; two disk drives; paddles and mouse, optional
Note: The graphics-dump utility does not work with the Imagewriter on the Apple IIc. An updated Fontrix will include many new options, with versions for 64K Apples and 128K Apples. It should have become available in January 1985.

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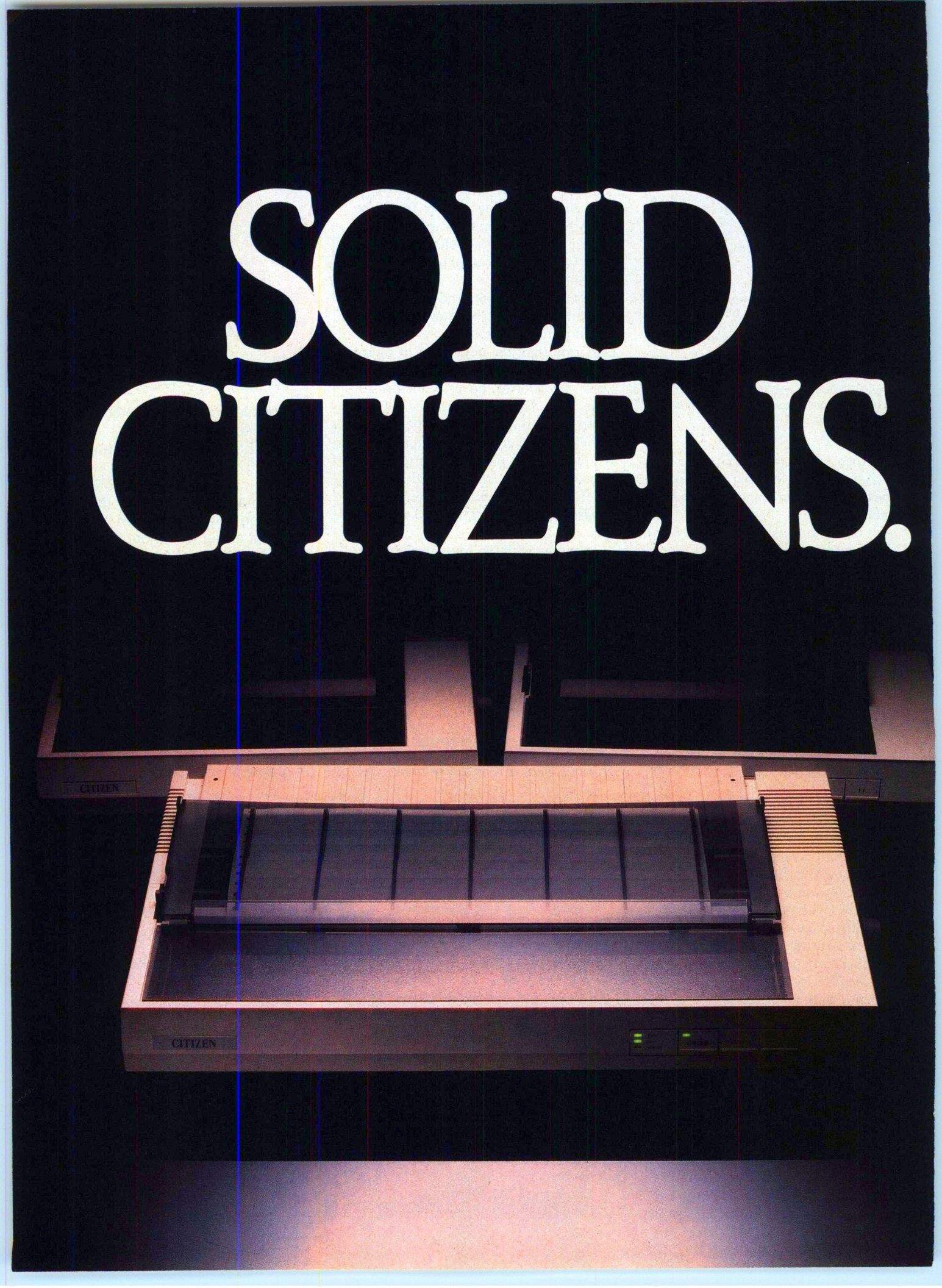

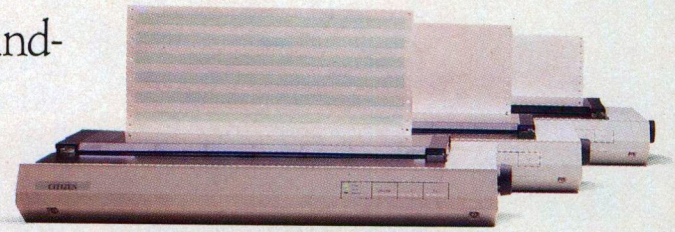

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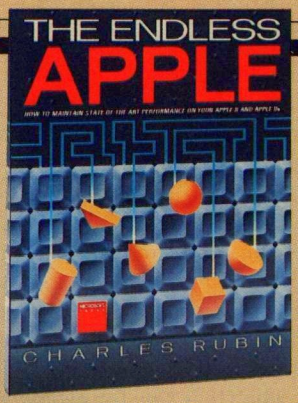
CIRCLE 433 ON READER SERVICE CARD

The Endless Apple is a new book from Microsoft Press that tells you how to maintain state-of-the-art performance on your Apple II-series computer. Charlie Rubin, the book's author, is an avid Apple enthusiast who explains how to get more power out of your Apple by taking advantage of new developments in hardware and software. The book covers word processing, spreadsheets, databases, integrated software, communications, games, and more.



This month *A+* will present the first installment of a two-part excerpt from *The Endless Apple* that is taken from chapter 1, "The Beginning," and chapter 3, "Superior Spreadsheets." This part will show you how to get more out of spreadsheets on your Apple, which seems especially fitting, since Apple's initial success was due in large part to the popularity of VisiCalc, originally designed only for the Apple II.

Apple II forever! is the Apple II's new battle cry; *The Endless Apple* shows you the way.

▶ BOOK EXCERPT/BY CHARLES RUBIN

the endless APPLE

Remember when you first got your Apple? Chances are it was your first personal computer. Remember your sense of delight and wonder as you opened the boxes and set everything up for the first time? This wasn't just a new toaster or television set. This was a computer: It was something that just might change your life, and would, at the very least, offer an endless and exciting new territory for you to explore. Maybe you got so excited you stayed up half the night with your new machine, plugging in peripheral devices, diving into manuals, watching words and pictures on the screen change at the touch of a key. For hours, days, or perhaps even weeks, your new Apple was the most amazing thing you'd ever seen.

Then something sad, but rather inevitable happened: You got used to your Apple. Like anything new, the Apple didn't stay new forever, and that sense of wonder and excitement faded. You got up to speed on your spreadsheet program. You began concentrating on the work you'd bought the Apple to do, and the once endless possibilities of your Apple were buried under specifics, such as keeping the books and writing letters. You forgot about what your Apple *could* do, and formed a concrete opinion of what it *did* do. In effect, you put your Apple back into a box—in this case, a mental box—only days or weeks after you first unpacked it.

People like to put things in boxes: We tend to form an opinion of what something will and won't do, and then forever after we think of it in those terms. This attitude is convenient and perfectly harmless with a toaster or a television, because they don't do much anyway. But it's asking for trouble with a computer, particularly with an Apple. Putting your Apple into any kind of mental box means you're turning it into an unchanging object. If you think of an Apple as you do a television set, you'll feel the same way about improving it—if you want something different, you buy a new one. And that's a shame, because flexibility has kept the Apple II new for all these years. And it's a flexibility that could, with a little imagination, keep you computing happily forever.

Out of the Box

Renewing and maintaining a love affair with an Apple II is a three-part process:

MICHAEL SANCHEZ

1. You change your attitude about your Apple.
2. You change your attitude about the computing you do.
3. You change your Apple.

The first two parts of this process are required; the third part is optional. If you open your eyes to the variety of things an Apple II can do, and the variety of ways it can do them, you'll begin pulling your computer back out of that mental box it's in.

Except for the monitor, disk drives, and perhaps the power supply, it's entirely possible that your Apple will outlive you.

You and Your Apple

One totally untrue but perfectly understandable attitude you may have about your Apple is that, as a seven-year-old computer, it isn't worth enhancing. You could point to the growing percentage of new products devoted to other computers. You could cite the trend toward larger, more elegant programs that require a 16-bit processor. You could be worried that your aging Apple isn't physically up to being enhanced, much as an engine with 100,000 miles on it isn't up to being supercharged. You might even mention the new Apple IIc as proof that Apple's support for the old II is finally evaporating.

This attitude is reasonable, but unsupportable. If you want a 16-bit processor, you can go out right now and get one for your Apple II. In fact, you may soon be able to replace your Apple's 8-bit processor with a 16-bit version that will still run your old 8-bit programs *and* give you access to more RAM. As for physical infirmity, electricity is not gasoline. Electronic devices last a lot longer than mechanical ones, and most of your Apple is electronic. Except for the monitor, disk drives, and perhaps the power supply, it's entirely possible that your Apple will outlive you.

And as for the new IIc filling the IIe's shoes, that's like saying Cadillac will stop making big cars because it now makes a little one. As conceived, the IIc fills a niche in the Apple II product line; it doesn't become the product line itself. Apple's marketing people see the IIc as a smaller, lighter, easier-to-learn, and *less expandable* version of the Apple II.

The IIc was designed as a sealed unit into which users can plug exactly one mouse, one modem, one external disk drive, one printer, and one monitor. The IIc costs less than a IIe equipped with an 80-column card, disk drive, and monitor, but it costs more than a IIe by itself. The IIc is fine for people who can confidently predict that they'll never need more than what it offers, but it isn't as well suited as the IIe for individuals, small businesses, and schools that want to keep their options open. And for beginners with the least amount of money to spend, a "stripped" IIe is still the cheapest way to Apple computing.

If all this sounds like the folks at Apple plan to keep the expandable II around for a while, it's because they do. Recent additions to the Apple II line, such as ProDOS (an enhanced operating system), the Apple Mouse, and AppleWorks (integrated software), all point to the future. Ongoing work by Steve Wozniak and others will soon result in products that will make the Apple II look and work amazingly like the Macintosh and Lisa, and this enhancement work shows no sign of abating.

When the IIc was announced in April 1984, Apple Computer took great pains to reposition the entire II product line as a family with a future. The Apple II line now has an installed base of over two million units, so the market is simply too big to walk away from. Indications from every sector of the personal computer market are that the Apple II will continue as a viable product through at least 1990. For individual computing needs, some would say it has never been bettered.

Enough Is Enough

This brings us to the second stage of the process—a change in your attitude toward the computing you do. A little more difficult, but no more expensive, it's a matter of stepping back from your computing and considering the difference between meeting your needs and buying products that go well beyond them.

Because computer technology changes so quickly, and because we're constantly exposed to advertisements for new hardware and software, we tend to think our problems can be solved only by buying something new. If we're not happy with the spreadsheets we design, we're more inclined to go shopping for new software than we are to consider re-reading the manual to get more out of our existing software. If we don't like the way our word-processed text is displayed, we'll consider getting a new computer before we explore other options. Part of this attitude comes from a lack of awareness of our other options (this book will help a lot in that department), but a lot of it is just plain consumerism and a desire for something new.

The proof of this is that we often find ourselves lusting after new products when our old ones are still perfectly good. A neighbor gets an IBM PC, and suddenly we're unhappy with our Apple. An increasing percentage of new software seems to have been written for MS-DOS, and we worry about being outdated, forgetting that our Apple is as useful and as reliable as ever. We are dazzled by 16-bit technology, even though it has virtually no effect on the quality of our word processing. We fall in love with huge spreadsheet/graphics programs, knowing that we never create large spreadsheets and never use graphics. We get carried away by doodads, such as screen icons and larger disk drives, whether we need them or not.

We often find ourselves lusting after new products when our old ones are still perfectly good.

The first thing to consider in evaluating a change in computers or a change to your Apple is the difference between what you want and what you need. But assuming you've got all the money in the world and can switch computers whenever you like (and you don't care whether you really need a new one or not), there are other reasons to resist the temptation. You've got a lot of learning time invested in your Apple, in both the hardware and the software. You've also got a considerable amount of personal data stored on Apple disks. You're comfortable with your Apple and can make it do your bidding quickly and easily. A new computer might temporarily quell your lust for the latest, but it will also force you to

Why Are Apple Owners So Loyal?

People who have the best often are, but in the case of Apple there's more. Apple owners think back to how Apple got started in 1977, just two people working out of a garage and what happened is the talk of Wall Street and the computer industry as well. Many like the fact that Apple only makes computers. Unlike their competition, they don't make typewriters, copiers or telephones. They do just one thing and that's one reason they do it so well.

At Applied Engineering we think the same way. You see, Applied Engineering is the only major hardware manufacturer totally dedicated to the Apple computer. Whereas most of our competitors must divide their customer support and engineering time between IBM, Atari, Radio Shack or other computers, our engineers only design products for the Apple. This dedication allows us to be much more familiar with the Apple and those who use them.

We don't expect you to buy an Applied Engineering peripheral on loyalty alone, but when you compare our products to those made by QUADRAM, MICROSOFT, AST and others you'll find out why Applied Engineering means a quality design, innovation, craftsmanship and total Apple compatibility.

The other guys do pretty well considering how busy they are with IBM. But at Applied Engineering, ALL of our work involves the Apple. In fact, all of our employees were Apple owners before they came to work for us. The people in shipping, engineering, quality control, order entry, all use Apples at work and at home.

This one track mindedness of ours allows us to offer the largest storage with AppleWorks and Visicalc and our Z-80 card now includes the new 4.0 operating system. We can expand the Apple IIe to over 1 MEGABYTE of memory and we've got clock cards, music cards, A to D converters, digital controllers, and a BSR system so your Apple can control your whole house with no additional wiring!

Applied Engineering recognizes that we've got to do a better job than our IBM counterparts because we know you're smarter than the average computer buyer, you bought an Apple. You see, our competition has it a little easier, their customers aren't as smart as you. After all, they bought the wrong computer.

So if you need more memory, or 80 columns, or RGB color, double hi res graphics, if you want to know the time and temperature or other "real world" conditions, if you'd like to run CP/M software, 68000 software, have a RAM disk, increase the storage of AppleWorks or Visicalc, if you want your Apple to play music, talk and sing, if you'd like your Apple to control the lights and appliances in your house, then do what NASA does, what Ford does, what the U.S. Government, Hughes Aircraft, Honeywell, Westinghouse, AT&T, and even what Apple computer does. Call Applied Engineering. Then you will discover what thousands of companies and tens of thousands of Apple owners already know, that you can be smart and loyal all at the same time.

We Set the Standard

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invest a lot of time in learning a new system, finding ways to transfer your Apple disk files, figuring out new software, and generally getting comfortable again. The transition is difficult to make, and should only be undertaken as a last resort. As you'll see, it won't be necessary in most cases.

When Enough Isn't Enough

Realistically, though, there are times when it's better to get a new computer than it is to enhance your Apple. Perhaps your computer is part of a system of computers, and you need greater compatibility. Perhaps you absolutely must have a program that isn't available for the Apple—although there aren't many of these—and your need outweighs the disadvantages of making the change. If so, you'll have to face the music.

If you're a typical Apple owner, you've barely begun to tap the potential of your system.

If you decide to enhance your Apple, you'll need to learn the how, why, and what of making the enhancement. You'll want to consider your options. These might be exclusively a matter of price or of features that differ between specific products, or they might involve significant differences between types of solutions.

Then, too, there's the Kludge (pronounced klooj) Effect to consider. A kludge arises from a situation in which modifying or enhancing your Apple causes more problems than it solves. Sometimes (usually after looking at too many hardware advertisements) I have a nightmarish vision of my Apple with all sorts of wires dangling from it, smoke rising from the motherboard and seeping through the case. My vision is of a kludge: an inelegant, inefficient, and generally troublesome computing device.

An Apple II is by no means a kludge. It takes some doing to make it one—but it can be done. Sometimes, a product that enhances one application will mess up another application. A speed-up circuit board that helps spreadsheet recalculation renders your favorite arcade game unplayable, or a monitor that does wonders for graphics makes text harder to read. In presenting hardware and software solutions throughout this book, I have tried to keep a sharp eye out for the Kludge Effect, and to cry foul when it rears its ugly head.

What's far more likely is that an enhancement product is simply more trouble to use than it's worth. If you have to start your Apple with a modification disk and then enter half a dozen control-character strings every time you want to use your favorite software, it simply might not be worth the trouble. You might well be tempted to give the Apple to the kids and get another computer instead. This is entirely reasonable in some cases—it will depend on your particular circumstances.

But, if you're a typical Apple owner, you've barely begun to tap the potential of your system. There are thousands of products on the market that can make your computer easier or more fun to live with, and there are products yet to be announced and capabilities yet to be

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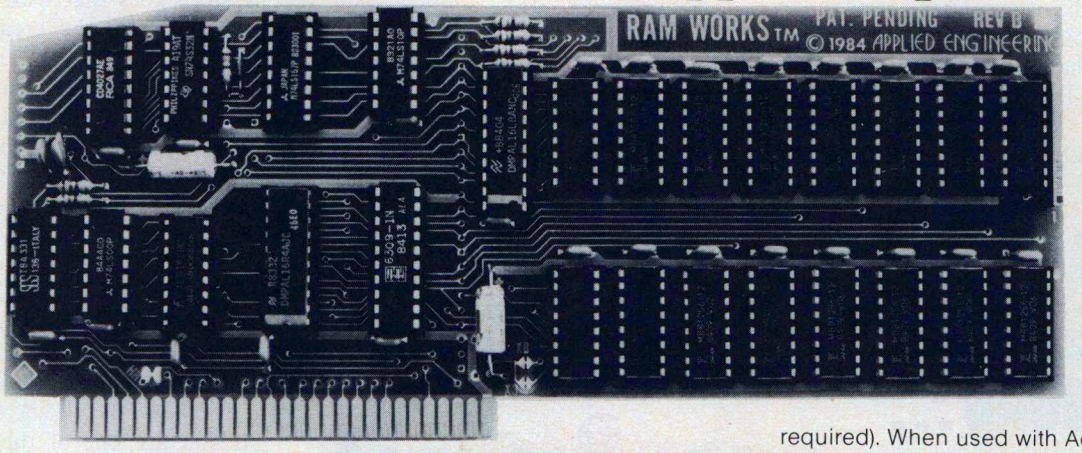

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exploited that will be truly mind-boggling. There's a lot of computing power and convenience still locked up in your Apple. Here's to unleashing it.

SUPERIOR SPREADSHEETS

To anyone whose business involves working with numbers, a spreadsheet program is invaluable. "How much money do I have coming in? How much do I have going out? Where is it all going, and what would happen if . . . ?" Those are the kinds of questions a spreadsheet program helps you answer—quickly, cleanly, and without sheet after sheet of ledger paper and roll upon roll of calculator tape.

To anyone whose business involves working with numbers, a spreadsheet program is invaluable.

VisiCalc was the first spreadsheet program to become available. In fact, it was the fuel in the personal computing rocket, and for nearly a year after VisiCalc's introduction in May, 1979, the only rocket in town was an Apple II. The story goes that Dan Bricklin and Bob Frankston, the creators of VisiCalc, needed a loaner computer upon which to run their program. They borrowed an Apple. And so it came to pass that business people, accountants, educators, financiers, and investors everywhere saw VisiCalc, found it good, and bought Apples.

Until VisiCalc was overtaken by second- and third-generation products (Multiplan in 1982 and Lotus 1-2-3 in 1983), it was the best-selling spreadsheet program. VisiCalc is still in wide use today.

If you are one of the hundreds of thousands of VisiCalc owners, you have a product that was truly revolutionary in its time, but might now be a bit dated. Its standard display, designed for a 40-column Apple II, will show you only four spreadsheet columns at a time. While VisiCalc has a theoretical maximum model (spreadsheet) size of more than 16,000 cells, the actual model size is dictated by the amount of RAM available; on a 64K Apple, that's 34K, or about 1000 cells. Once you become familiar with VisiCalc and begin creating larger and more sophisticated models, that 1000-cell limit can become a problem. For some people, it's like having a four-function calculator on which only the addition function is working. In certain situations, the size limitation can even be embarrassing.

1-2-3, Is It for Me?

Say you've happily been using VisiCalc at the office for four years now, but the upstart next door has just gotten herself an IBM PC. She's loaded it up with 512K of RAM, learned Lotus 1-2-3, and is now creating monster spreadsheets that seem to recalculate in nothing flat. When she forgets a command, she has immediate help at the touch of a key, and she can whip out a nicely colored pie chart in a couple of minutes.

Everywhere you turn, it's IBM and Lotus, IBM and Lotus. You recognize a preponderance of Lotus spreadsheets turning up at the departmental meetings. You envy your competitor's IBM keyboard with its numeric keypad. You lust after that IBM display that shows eight columns instead of a measly four.

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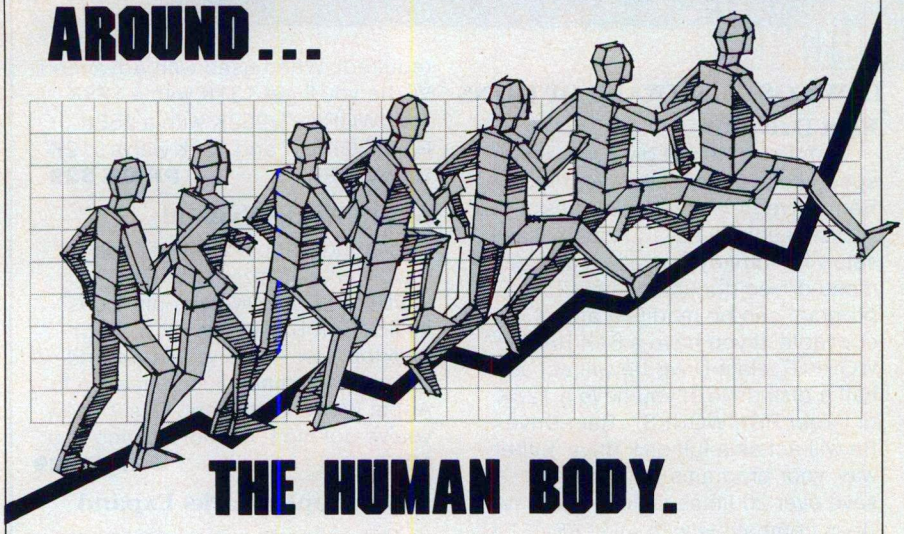

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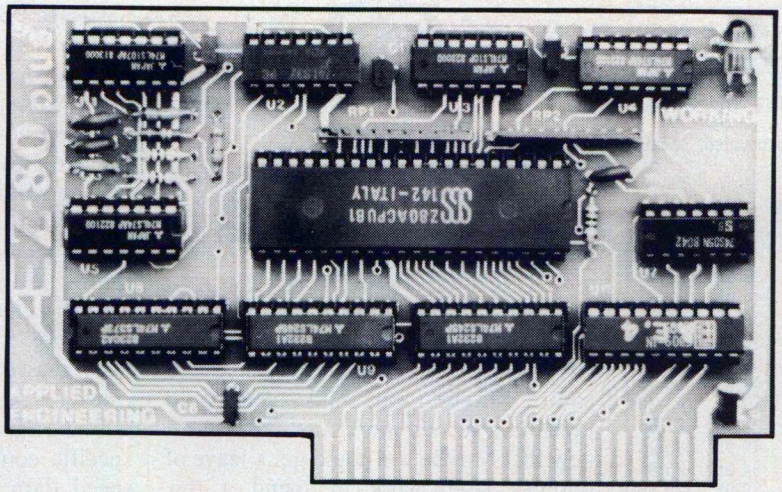

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You feel your once-keen analytical edge slipping, slipping . . .

You wake up from this nightmare in a cold sweat, determined to cashier the old Apple and switch over to the enemy camp. Maybe, you think, you could take out a second mortgage to pay for a new PC. Maybe you could get a leave of absence from work to spend a few weeks learning Lotus and transferring all your files to the IBM format. It all seems so drastic. Isn't there another way out?

Maybe, you think, you could take out a second mortgage to pay for a new PC.

Yes. There are lots of ways out. Which one you choose will depend on the kind of spreadsheeting you do.

What Do You Need?

What sort of spreadsheeting do you do, anyway? It's true that an Apple running VisiCalc with the standard 64K of RAM will only accommodate models of about a thousand cells, but maybe that's all you need. Maybe the Lotus-lover in the office next door builds monster worksheets because she's doing the whole division's budget projections for the next five years, and the budget has 700 line items. Imagine trying to remember which part of the spreadsheet contains the paper-clip projection for March, 1987.

And what about the time it takes to load and save files? The bigger the model, the longer this takes. Maybe you see her cranking out the graphics because the marketing people have found out she has Lotus and a three-pen plotter and she's a lot quicker than the art department. This is something you're actually yearning for? The point is that everyone does different things wth spreadsheet programs, and everyone doesn't need 1-2-3. Look before you lust, and don't fix things that aren't broken.

On the other hand, maybe your standard Apple really is cramping your style. As you've become a master model-builder, you've come to yearn for more RAM and bigger worksheets. You'd like to see more of the sheet on the screen at once. You'd like things to recalculate faster. You'd rather enter data with a numeric keypad, which you know by touch, than have to look at the number keys atop your Apple keyboard.

Software Problems

The first thing to do is look at your software and how you use it. Are you really making the best use of it? It's amazing how many VisiCalc users are disgusted by the slowness of data entry for years, only to discover one day that they can turn off the program's automatic recalculation mode and speed things up tremendously. People in this boat can clear up a major problem with one little command, but they'll never learn that command unless some angel rides to the rescue or they read the manual more thoroughly. If you have a specific complaint about recalculation speed, data flow, or an apparent lack of other functionality, the best place to start looking is the user's manual.

Improving your skills with a product you already know is infinitely less disruptive (not to mention less expensive) than starting all over again with a new product. The standard VisiCalc manual is an excellent and well-written guide, and there are dozens of tutorial books on the market to provide additional help. Specific problems with VisiCalc or other spreadsheets can also be cleared up by a local expert—doubtless a resident of the nearest computer store, or perhaps as close as the office down the hall.

If you have a specific complaint, the best place to start looking is the user's manual.

But suppose you're really up against the limits of the program. You want variable column widths, or the ability to name cells, or other advanced features. If so, you're in the market for new software. The easiest way to handle this is to get another product that runs on your unvarnished Apple, just as your old program did. You'll also want to make sure the new program can read your old spreadsheet files, so you can transfer your data. This is generally not

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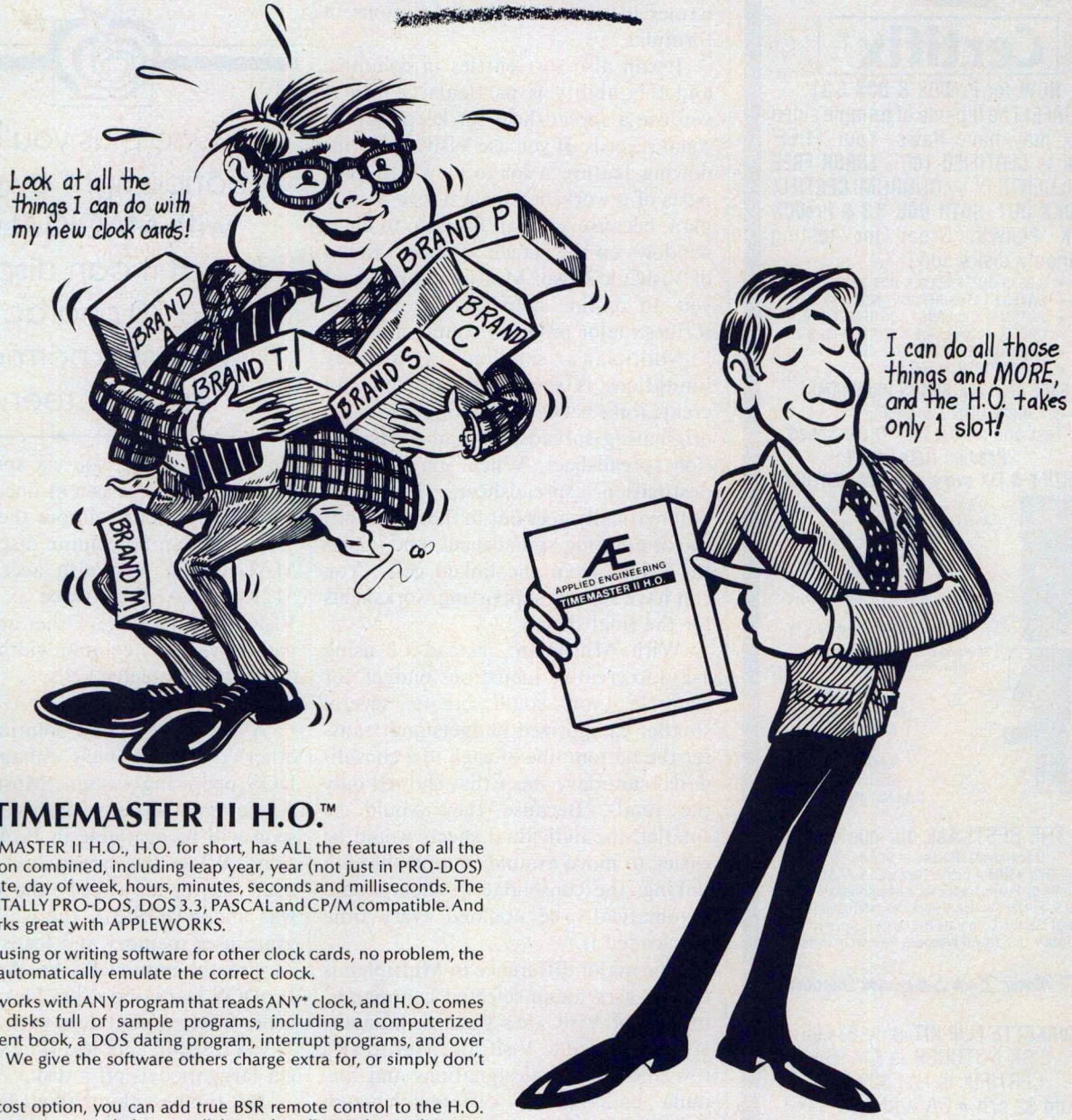

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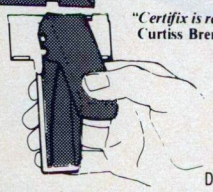

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a problem. Beyond this, you should check out products that feature improved capabilities in the areas where you need them.

More Functions, Bigger Models

Microsoft's Multiplan is a cut above VisiCalc in the features department, and it offers a kind of solution to the size problem. Multiplan has better formatting capabilities, with features such as centering numbers in columns, and varying individual column widths. It lets you name cells and then refer to the names instead of the cell locations in formulas.

It can also sort entries in columns, and this ability is particularly nice if you use a spreadsheet for keeping personal records. If you use VisiCalc's windowing feature a lot to view different parts of a worksheet, you'll love Multiplan, because you can have up to eight windows on the screen at once, instead of VisiCalc's two. Multiplan also gives you an on-line help facility that describes major program commands.

Multiplan's solution to memory limitations is sheet linking. You can create links between cells or areas on an originating spreadsheet and a destination spreadsheet. When you load the destination spreadsheet, Multiplan automatically goes out to the disk, finds the originating spreadsheet, and copies the values from the linked cells. You can have several supporting worksheets for the final sheet.

With Multiplan, instead of using 1-2-3 to create a monstrous budget, for example, you could create several smaller categorized budgets and transfer the bottom line of each to a consolidated summary sheet that showed only the totals. Because they would be smaller, the individual sheets would be easier to move around in, and through linking, the consolidation sheet would automatically be updated every time you loaded it.

The major difference in Multiplan is that it uses menu-selected commands, instead of VisiCalc's slash commands. If you are used to VisiCalc, Multiplan's row and column designations and formula building are different enough from VisiCalc's to make it a little harder to get used to. The DOS 3.3 version of Multiplan can recognize up to 128K of RAM, so it will take advantage of extra RAM you might add to your Apple, but not as much as other products will.

MAGICALC, from Artsci, is an easier spreadsheet to move up to from VisiCalc, because it has slash commands similar to VisiCalc's, and it uses very similar formula-building techniques. MAGICALC breaks major spreadsheet functions, such as data entry and calculation, file management, and formatting, into separate modules you select from a menu; but since you're doing mostly data entry and calculation, this modularity doesn't slow you down too much.

One plus you'll notice right away with MAGICALC is that it can display up to 70 characters across a normal Apple screen, giving you six spreadsheet columns on the screen at once, instead of VisiCalc's four, without the need for you to buy an 80-column display card. MAGICALC can also access up to 512K of RAM, or twice as much as VisiCalc can handle. Other advantages include variable column widths and individually protected cells.

One plus you'll notice right away with MAGICALC is that it can display up to 70 characters across a normal Apple screen.

ProDOS

A software-related solution of another kind is Apple's enhanced ProDOS operating system. Most popular Apple spreadsheet programs are now or soon will be available in ProDOS versions. While the spreadsheet software itself may or may not be the same as it was under DOS 3.3, the way the program uses memory and loads files will be greatly improved. An Apple with ProDOS loads and saves files about six times faster than it does with DOS 3.3, so you'll spend a lot less time waiting to get large models off a disk.

But the best thing about ProDOS is the way it handles memory and storage devices. ProDOS has the ability to detect the amount of RAM available on any given Apple, and to access that RAM accordingly. Software developers will have to modify their programs specifically to take advantage of this feature when they convert their existing software to ProDOS, but since spreadsheets are so memory-intensive, any

ProDOS spreadsheet program you buy should give you automatic access to memory expansion cards. VisiCorp's new FlashCalc, for example, is a ProDOS program that will access up to 512K of RAM automatically.

The ability of ProDOS to detect and access extra storage isn't limited to RAM, though. If you buy a high-capacity floppy disk drive or a hard disk that supports it, ProDOS will allow you to take full advantage of the extra storage space automatically.

Since March of 1984, ProDOS has been the standard operating system shipped with new computers in the Apple II series. If you own an older Apple, you should be able to get ProDOS for a nominal charge.

Hopped-up Hardware

Despite the fact that most people don't need it, the ability to create larger spreadsheet models is the thing many Apple users crave most. This is such a common complaint that a whole mini-industry has grown up around finding ways to enable people to create larger spreadsheet models on the Apple II. If you really want to build bigger models and have them all in RAM at once, you'll have to add more RAM.

A Little History

VisiCalc was designed to run on a 48K Apple II, which was the biggest standard Apple in 1979. If you bought an extra 16K of RAM on an Apple Language Card, you could bring the total up to 64K, and VisiCalc would use this extra memory, but nobody was really thinking beyond this limit in 1979.

Since many "typical" spreadsheets (say, 20 columns by 50 rows) fit into somewhere between 64K and 128K of RAM, many VisiCalc users were soon bumping up against the 64K limit, and the third-party people began thinking of ways around it. They discovered that the Apple II treated its memory as one 48K chunk and—if you had the optional language card—one 16K chunk. VisiCalc fits neatly into the main 48K chunk with room to spare, so it used part of this main bank of memory and most of the 16K bank for storing your data. It was on this second, 16K bank that the developers concentrated.

The Apple's processor can only recognize 64K of RAM at any one time, but that didn't stop developers from figuring out how to swap the first 16K bank with other 16K banks. You could thus have part of a spreadsheet stored in the original 16K bank, and other parts of it stored in other 16K banks,

The ability to create larger spreadsheet models is the thing many Apple users crave most.

and simply swap the bank containing the part of the model you needed in and out of action when you needed it. Since the switch occurred at electronic speeds, you would never even know it was happening.

Working this magic was simply a matter of teaching the spreadsheet program to look for alternative 16K banks in which to store data, and then building add-in memory (add-RAM) boards that contained the extra RAM. (NOTE: The Apple IIe doesn't have this 48/16K RAM division; it switches

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RAM in banks of 64K, but otherwise operates in the same way.)

Adding RAM

The following discussion of RAM assumes you have a 64K Apple (either a IIe or a II or II+ with the 16K Language Card installed). If you have a 48K Apple, getting a Language Card will be your first step. The Apple's memory-management system allows for the use of several megabytes of RAM via this bank-switching technique, so any limitations will more likely come from the software you're using and the depth of your pockets.

If you have a 48K Apple, getting a Language Card will be your first step.

Different spreadsheet programs use memory in different ways, and some have lower limits on the use of extra RAM than others. Multiplan will normally access models fitting into up to 128K of RAM; VisiCalc will let you build models up to about 220K in size; MAGICALC, FlashCalc, and a product from Videx called UltraPlan, will access up to 512K of RAM. MAGICALC, FlashCalc, and UltraPlan will access additional RAM without modification. If you're using VisiCalc or Multiplan with DOS 3.3 (rather than ProDOS), you have to start up with an additional software disk, called preboot software, that "teaches" these programs how to use the extra RAM and lets them know it's there to be used.

Some add-RAM boards come with pre-boot software included. Other manufacturers sell the software separately for as much as $100. Almost all preboot software disks contain the preboot "teaching" program, as well as extra, built-in programs that let your Apple use the extra RAM in other ways or that otherwise improve your computer's performance. Some of these extra programs, for example, let you save models larger than 143K (the maximum space on a standard Apple diskette) by watching for the disk to fill up and then prompting you to insert a new data disk before the saving operation continues. Others let you save and load spreadsheet files in as little as 20 seconds.

Some of this latter, fast-loading software, however, only works when you're loading or saving the contents of an entire disk, so you can't have any other files on the disk with your model. Loading a whole disk at a time is faster than finding and reading a specific file off a disk, though, especially when it's done in 20 seconds or less.

In attempts to make all that extra RAM useful for more than spreadsheets, add-RAM manufacturers also include what's called RAM-disk software in their offerings. This software fools DOS 3.3 into treating the extra RAM as another disk drive. When used as a RAM-disk, or pseudodisk, the extra RAM can store one or more data files and give you very fast access to them. Instead of having to go out to the disk drive, spin the disk, find the data, read it, and bring it back, your Apple can find a file and get it from a RAM-disk at electronic speeds—which, to you and me, means almost instantaneously. RAM-disks are very useful for

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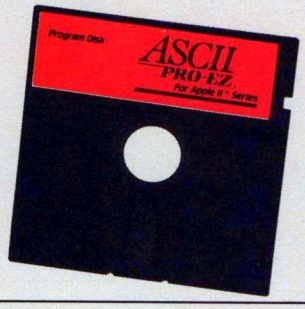

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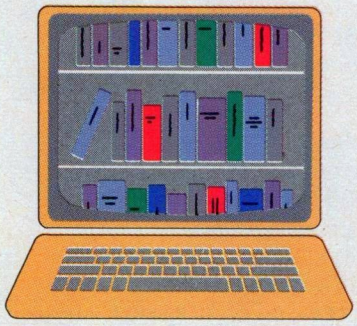

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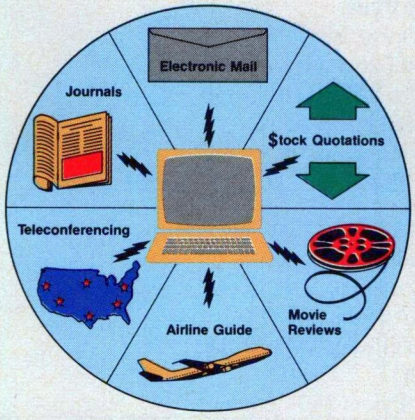

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applications that require a lot of sorting or switching from one file to another. Many ProDOS applications have housekeeping programs, called utilities, that let you use a RAM-disk simply by specifying one as a storage option.

Titan Technologies (formerly Saturn Systems) and Legend Industries were the first companies to offer RAM boards and VisiCalc pre-boot software, in 1981. Since then, several other companies have gotten into the business; other major names are Quadram and Omega Microware. Add-RAM cards are available in sizes from 16K to 256K, and range in price from $100 to

You're going to want to think hard about exactly how much RAM you'll need.

$700. These cards are frequently discounted up to 50 percent, particularly if purchased by mail order.

Obviously, though, at about $4 per 1000 bytes of storage, you're going to want to think hard about exactly how much RAM you'll need, or whether you really need it at all. Here are the major points in summary:

The Good News: You get the ability to build larger spreadsheet models all in RAM, with the attendant improvements in speed of recalculation and simply in moving from one area of the sheet to another. The other bonus is being able to use a RAM-disk with other applications. Extra RAM, by itself, won't have any negative effect on your other software or the rest of your computer, except for occupying one or more of the Apple's internal expansion slots (depending on how many additional boards you buy).

The Bad News: Depending on the spreadsheet program you're using (and whether or not it runs with ProDOS), you may need to use pre-boot software. With VisiCalc, for example, you would load the pre-boot software, and then remove that diskette and load your VisiCalc program.

With Multiplan, you would actually need to boot *three* diskettes to make use of extra RAM, because Multiplan's copy-protection scheme involves the use of a system diskette that must be loaded before you can load the actual program.

Many hardcore spreadsheeters are happily using pre-boot software and not minding the extra disk-loading. Whether or not you'll mind it depends on how much you use your spreadsheet. If you use the program for long periods of time, the pre-boot procedure won't be too bothersome. But if you switch back and forth between a spreadsheet and other applications all day, the whole process could get old fast. You know your requirements best. You be the judge. ✚

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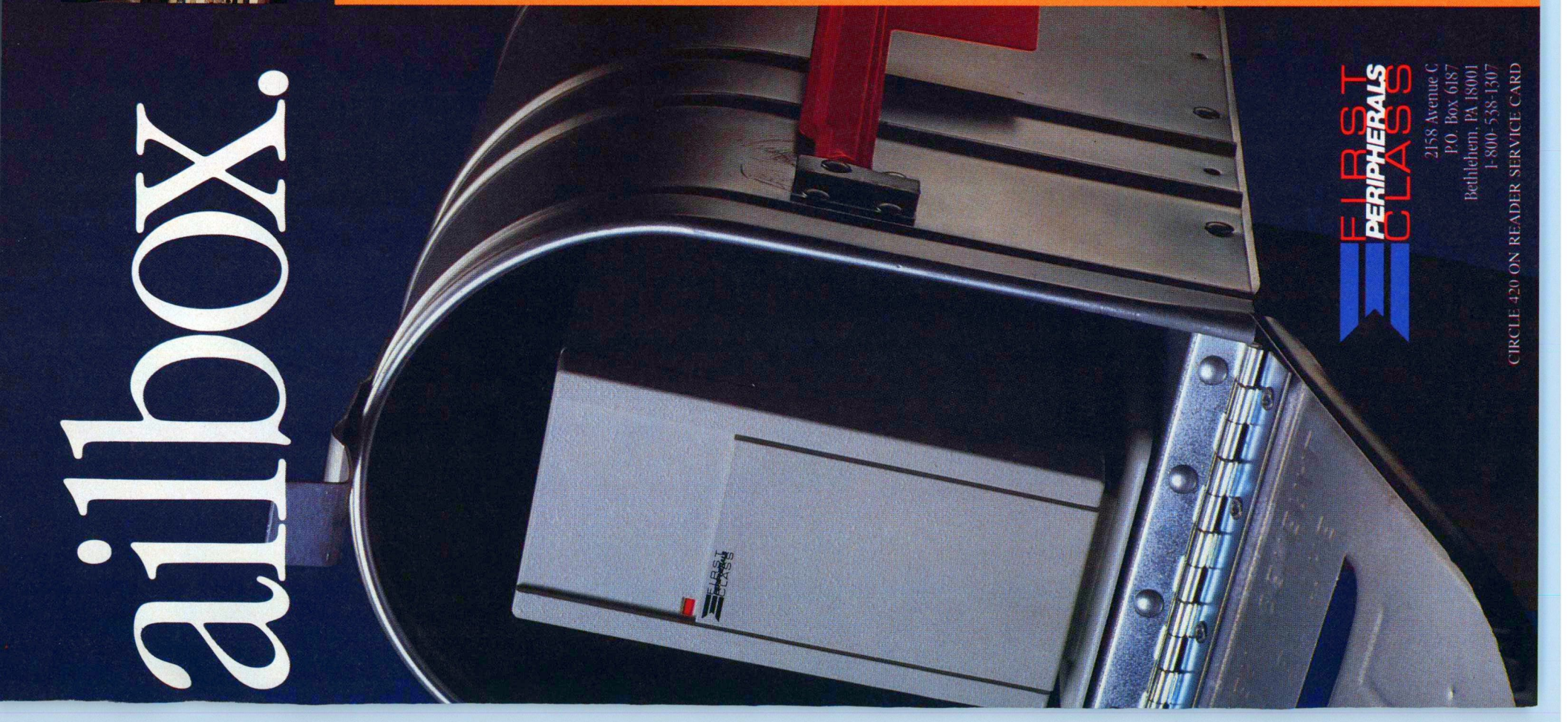

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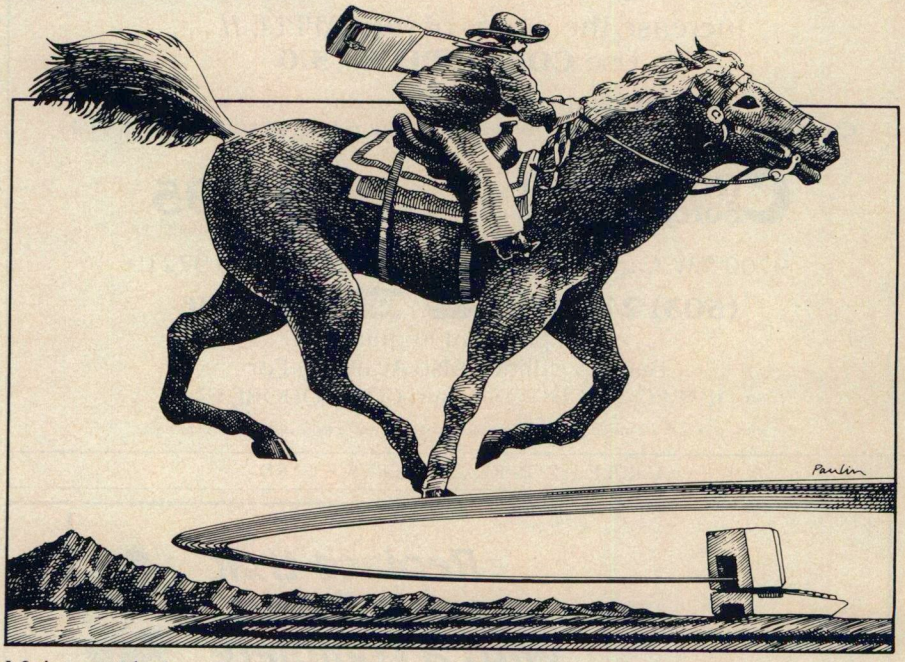
TELECOMMUNICATIONS OUTLOOK



DOUG PAULIN

This column is my first in 1985, and I would like to offer a few predictions about telecommunications in the coming year. By observing trends, we can reach some logical conclusions.

I am optimistic about telecommunications as a whole, especially in the business and educational sectors. Most companies and schools examine, study, and deliberate before making major decisions. Thus, they are one to two years behind the times when it comes to microcomputers.

Telecommunications is not one of the first applications that companies or schools get involved in when they purchase a computer. After they set up spreadsheets, word-processing programs, databases, and educational software, then telecommunications comes into play.

So why am I optimistic? The level of purchases in 1983 and 1984 appears to indicate that many companies and schools will attempt a foray into telecommunications in 1985 and 1986.

On the business end, companies will discover the wealth of information available to them. They will discover that they can receive and send a letter or document instantaneously—beating overnight service and even the new ZAP mail. Details that are so easy to forget during a phone conversation can now be sent electronically and stored on disk. No more "telephone tag"—the infamous routine of calling, leaving a message, stepping out for a minute, finding a message, calling back, leaving a message. Instead, you can leave the message in an electronic mailbox.

In schools, exchanging information about the best textbooks, software, and classroom strategies can benefit both teachers and students. Electronic seminars are available to all educators, from Maine to Alaska, at a much lower cost than renting a convention center and flying people in. Those who cannot attend the "live" seminar can download a transcript onto disk later.

And in the Home?

I am a little more cautious about the home market. It will grow, too, but probably not at the same pace as the business and school markets. Alas, cost is the major culprit.

Details that are so easy to forget during a phone conversation can now be sent electronically.

Home computers and telecommunications are upscale luxury items. Almost all computer-owning families can justify one-time costs for word processing or other applications, but few can afford to incur continuous hourly charges for telecommunications services. Unfortunately, I do not foresee a dramatic decrease in prices.

Furthermore, although have-it-here-yesterday businesses can benefit from the instantaneous transfer of electronic mail, most homeowners can get by with a 20¢ stamp and three-day delivery by the postal service.

Students are a bright spot, though. They can benefit the most from the wealth of information stored within telecommunications services. If they use the services prudently, they can keep the charges within acceptable bounds while increasing their knowledge.

A final point before we leave the Prediction mode and move on to some existing examples of telecommunications in action. Telecommunications is becoming simpler, yet more advanced, all the time. The bugs and intricacies of telecommunications programs and the information utilities themselves have

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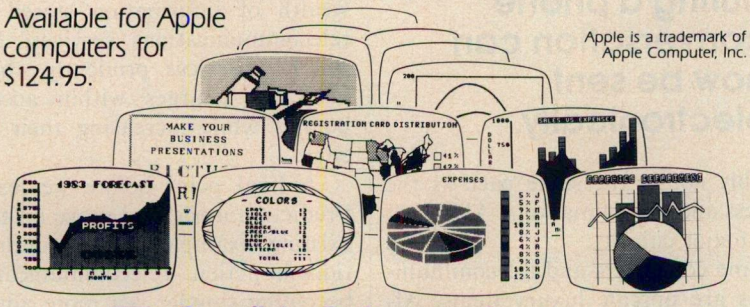

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been straightened out, making the systems easier to operate and the information faster to retrieve.

BUSINESSnet and SCIENCEnet

Omnet, an electronic-mail-management service based in Boston, operates two electronic-mail networks, BUSINESSnet and SCIENCEnet. As you might have guessed, BUSINESSnet is for businesses, and SCIENCEnet is for the scientific and engineering community.

Many educational institutions are participating in the SCIENCEnet network. For example, under the general heading of oceanography, some of the schools on the network include the Institute of Marine Science (University of Alaska), the Chesapeake Bay Institute (Johns Hopkins University), and the

Telecommunications is becoming simpler, yet more advanced, all the time.

Graduate School of Oceanography of the University of Rhode Island.

Both SCIENCEnet and BUSINESSnet use the GTE Telenet system, which operates from 250 cities and extends into 40 countries. Accessing the system is usually only a local phone call away.

For actual electronic mail, you use GTE Telemail, one of the easiest systems I have ever used. To send a message, you simply type COMPOSE, fill in the code of the mailbox or mailboxes to which you are sending your message, and start typing. Finish with a separate line containing only a period and a carriage return, and that's it—quick and easy.

SCAN ALL lets you see a summary of your mail, and READ lets you read it. Once you've read your mail, you can type ANSWER, in which case your reply goes directly back to the sender, or FORWARD, which sends the message to another mailbox that you name.

Note that you must insert a carriage return manually at the end of an 80-character line. Furthermore, you need the actual mailbox code, which makes sense if you are sending a message to an individual. Each mailbox is protected by a user-defined password, ensuring security and privacy.

BUSINESSnet and SCIENCEnet contain bulletin boards open to all users of the system. Each board is for a spe-

cific topic. You reach the board with the Check (board name) command, and the Read and Compose commands still apply.

Omnet carries a one-time setup charge of $75 per mailbox, or $500 for up to 15 mailboxes (add $10 for each additional mailbox). Mailbox fees are $15 per month, or $10 per month for more than 15 mailboxes.

Connect rates via Telenet are $15.40 per hour from 7 A.M. to 6 P.M., Monday to Friday; $7.70 per hour from 6 P.M. to 9 P.M. Monday to Friday, and weekends and major holidays from 7 A.M. to 9 P.M.; and $4.40 per hour from 9 P.M. to 7 A.M. every day. Additional charges apply for character storage, direct delivery, and multiple-message broadcasting.

Omnet is available via a toll-free (800) number at a higher charge. Higher rates also apply for service in Alaska, Hawaii, Puerto Rico, Canada, and Mexico. In general, users in the continental United States can expect to pay approximately $50 per month.

Omnet is a fine service for frequent communication within a selected group. It is all business or science and contains no games or databases other than what subscribers provide. Only executives or professionals should consider it.

On-Line Trivia

The trivia-game craze is well documented by now. Trivial Pursuit started a mania that no one expected. How successful is it? Look at all the board-game clones, not to mention the two dozen computer imitators.

It was only a matter of time before a trivia game came on line. The Whiz Quiz, produced by Grolier, the same company that produces an on-line encyclopedia, is now available on CompuServe.

The Whiz Quiz has three categories—Who Said That?, Sports, and Movies. It uses a multiple-choice format, asking a question and letting you choose from four answers. Not only does it provide the correct answer, but it also adds a nugget of information about the subject of the question.

For example, under Who Said That?, the program asks you who said, "I think, therefore I am." Was it Descartes, Voltaire, Rousseau, or Erasmus? If you answer *Descartes*, you are correct. The Whiz Quiz then follows with "Did you know that Descartes, with Pierre de Fermat, is considered the cofounder of analytical geometry?"

Too easy? Then who said, "To do injustice is more disgraceful than to suffer it?" Was it Socrates, Plato, Jefferson, or John Adams? It was Plato, who, incidentally, was a pupil of Socrates.

You receive a point total at the end of the quiz, and top scores are displayed. You can find the Whiz Quiz listed under Educational Games on CompuServe.

Parting Shots

I am enthusiastic about the potential of telecommunications, especially during this year. I look for increased awareness about what telecommunications can accomplish—for businesses, schools, and individuals. From relaxing trivia to instantaneous electronic mail, your modem and your Apple can bring you a wealth of education, entertainment, and information. ✚

Russ Lockwood is an assistant editor at Creative Computing *and a former staff writer for The New York Times Information Service.*

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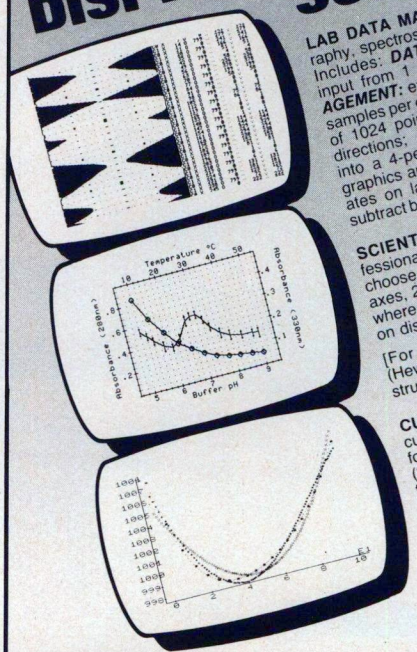

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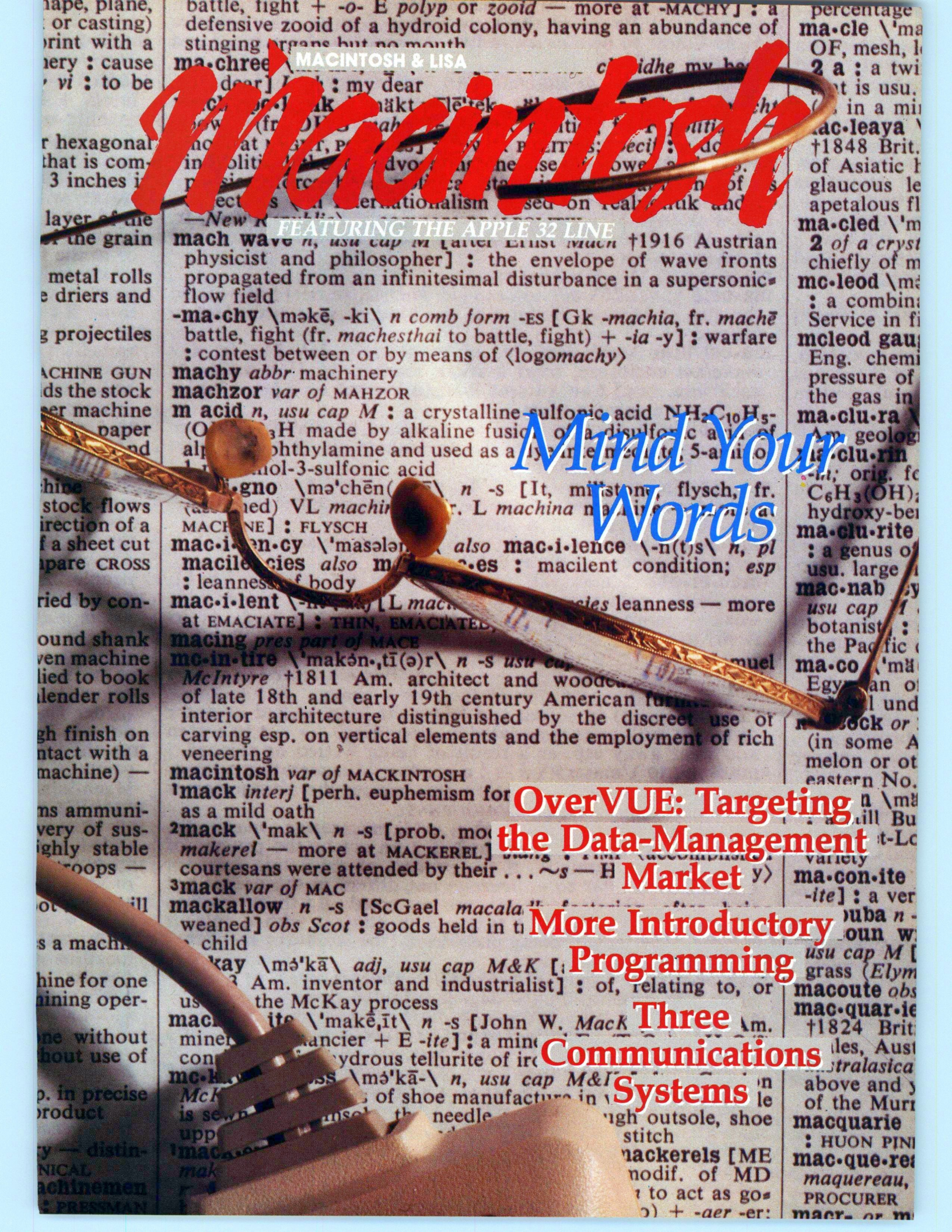
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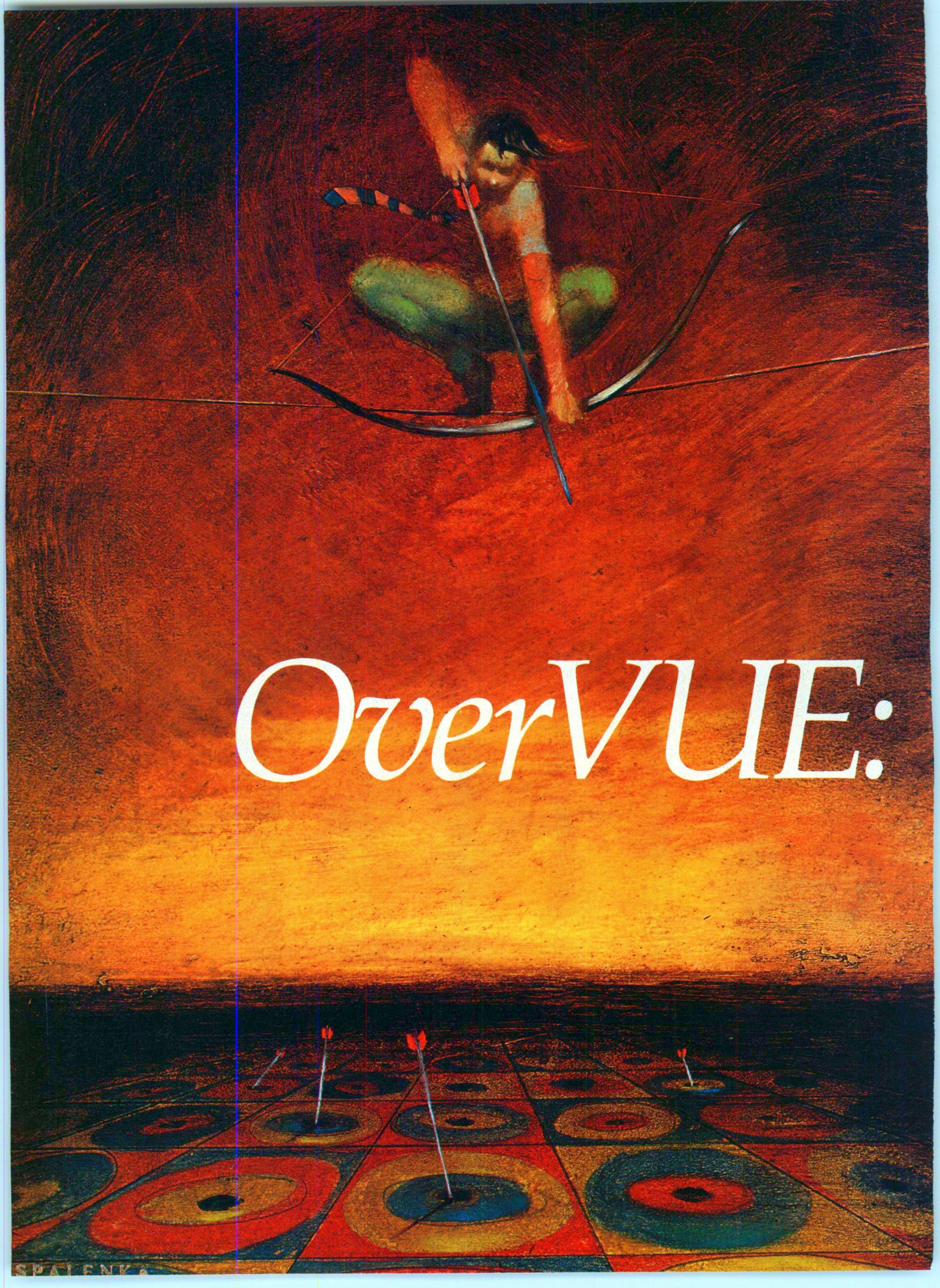
OverVUE:

OverVUE, from ProVUE Development Corporation, is a powerful new data-management package for the Macintosh computer, geared especially for lightning-fast performance. OverVUE makes full use of the Macintosh's 32-bit processor to select, analyze, and sort information in a fraction of the time most other packages require.

At first glance, OverVUE looks more like an electronic spreadsheet than an information-management program because of its row-and-column structure and the way it organizes data records. Each individual record is displayed horizontally, with up to 64 separate columns for each field within the record. This arrangement allows up to 17 records to fit on the screen at once, yet it keeps all the data clearly organized. For longer records, when not all of the information can fit across the display screen, you use scroll bars to shift the display back and forth.

Targeting the data-management market

Speed Demon

Unlike most other data-management programs, OverVUE holds an entire file within the computer's working memory, which gives you much faster response than what would be possible if the file were held on disk. With OverVUE, operations such as sorting or locating specific records are not limited by disk-access time and execute in a fraction of the time that other programs take. In fact, OverVUE can sort a 1000-record file in less than two seconds.

You can also group records by category, with totals and subtotals for each, and analyze data for count, minimum and maximum value, and averages. All of the commands are easy to invoke and rarely take more than a second to complete.

OverVUE's design lets you sort or select records by any qualifier with equal ease. Disk-based files are often indexed by only one key field, which makes selecting or sorting by another field much slower. For example, if a disk-based address file were sorted alphabetically by last name, locating all the Smiths would be an easy task. Searching for records with a particular zip code would take much longer, however, since the program must scan each record individually to locate the correct choices. OverVUE can handle both situations with the same blinding speed.

This speed and flexibility is not without its price, though, since the maximum size of data files is limited by system memory In a 128K Macintosh, approximately 30K is available for file data, with the program itself occupying the rest of the machine's memory. OverVUE makes efficient use of the data-storage area by compressing the file into an area 20–30% of the size it would normally occupy. A typical data file might contain 600–700 records on a 128K machine and ten times that number with 512K.

Meant for the Mac

OverVUE is Macintosh software the way it was meant to be. Pull-down menus and dialog boxes are used intelligently throughout the package, making it extremely easy to master. For example, to sort an address file by last name, simply point to any entry within that column and choose Sort Up from the Analyze menu (see figure 1). The entire file is rearranged in the ascending order almost instantly. Conversely, selecting Sort Down arranges the list in descending order. Anyone who is familiar with basic point-and-click operations should be able to sit down with OverVUE and use the package efficiently in a matter of minutes. OverVUE is not a modified Mac version of some existing package; it was designed from the ground up for the Macintosh and takes full advantage of the machine's capabilities.

The program's documentation is also an example of classic Macintosh design. This 144-page, spiral-bound manual is packed with screen illustrations from cover to cover, with every command described and demonstrated in detail. Four sample data files on the program disk let you follow along with the manual and experiment with the various commands.

Designing a new data file is a simple task. Just type in the names you want to use as column headings and specify the width of each column (up to 62 characters) and you are ready to enter information. OverVUE can store a full 62 characters in any column, regardless of its width, although only the data that will fit within the allotted space is shown on the screen.

You can move columns from place to place even after you've put data into them, which means you can fine-tune the form design until it suits your needs. You can insert new columns into an existing file and delete unneeded ones just as easily.

In addition to the information you supply, columns can also display calculated data based on numeric or string arithmetic. So, for example, you can create a Total column based on values in a Price column multiplied by the contents of a field marked Quantity.

You can type any kind of data—alphabetic or numeric—into any column, but you can specify certain types of data as defaults. For example, a column of financial information

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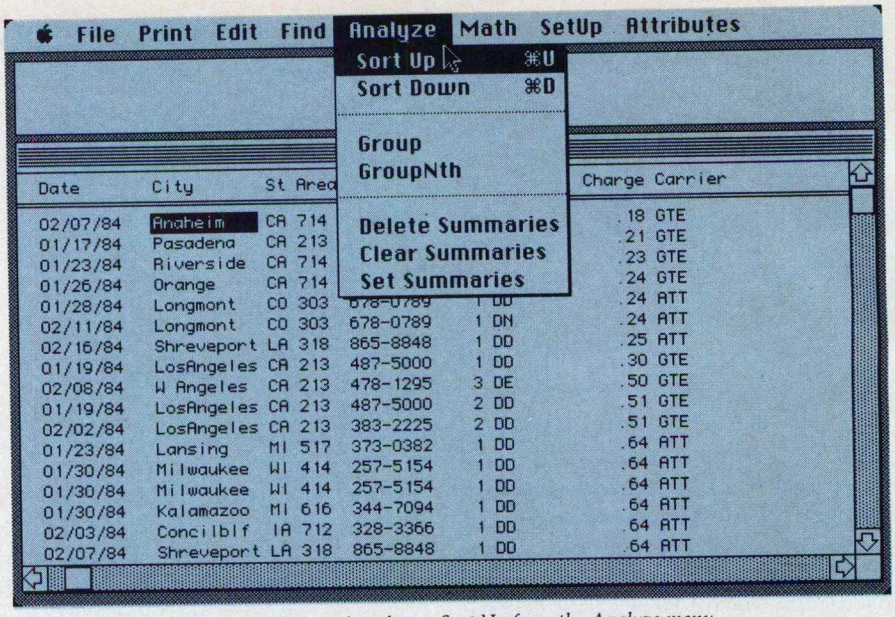


Figure 1: To sort a file in ascending order, choose Sort Up from the Analyze menu.

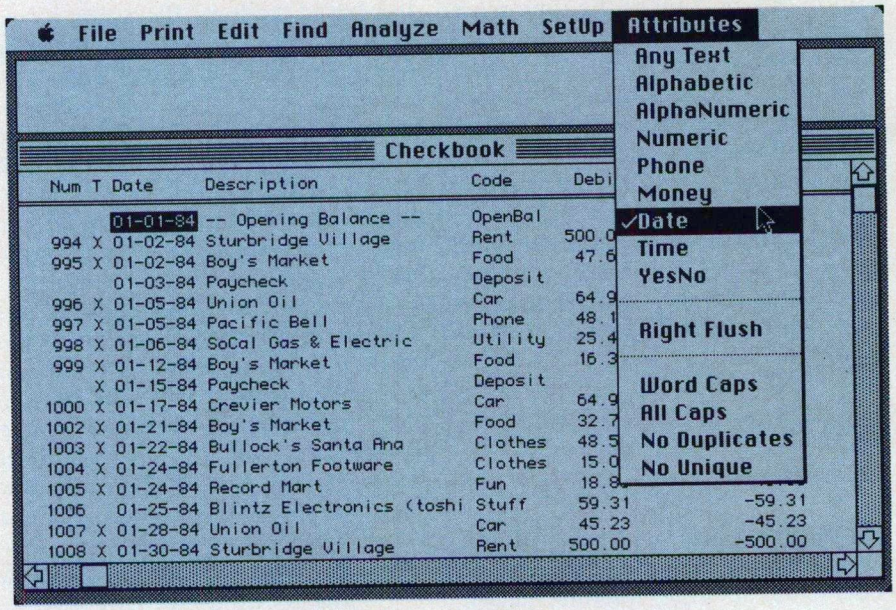


Figure 2: To format a column, use the Attributes menu.

could be assigned the Money attribute, which would allow entry of numbers, dollar signs, commas, and periods only. There are also selections for yes/no responses, dates, and phone numbers (see figure 2). OverVUE lacks an automatic dating function, and you cannot access the Macintosh's built-in clock from within the program.

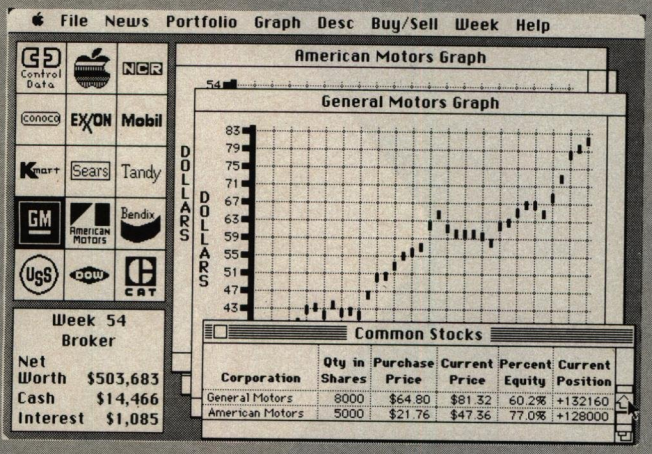
One option of the program converts text entries into uppercase letters, regardless of the way you entered them. Another possibility is to have the program make just the first letter of a text entry uppercase, which is ideal for names and addresses. In addition, OverVUE gives you full control over a column's display format, allowing you to move the column's contents to the right or the left.

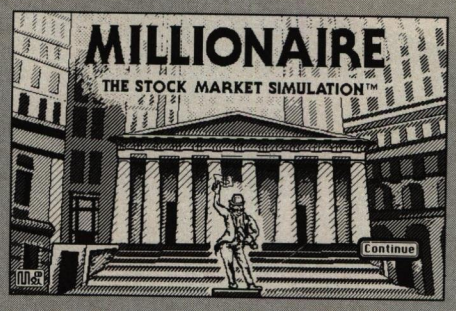
You can arrange printed reports in a variety of formats, from an exact replica of on-screen information to mailing labels, financial summaries, and complex reports. Designing a print format is as easy as moving the field names around on the screen until they are in the positions you want (see figure 3). If you want to omit some part of the record from the printed report, just remove it with the mouse. If you want to include information that is not in the data file (such as Attn: on mailing labels), simply type it into the format design. You can design up to nine complete print formats and store them to disk. Each appears under its own name on the pull-down Print menu (see figure 4).

Games investors play

"...The games can be as logical, yet as arbitrary, as markets themselves. They are certainly not child's play."

FORBES, July 16, 1984





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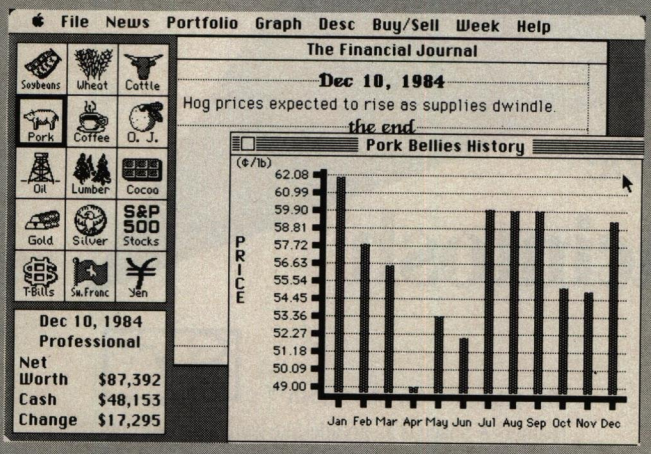

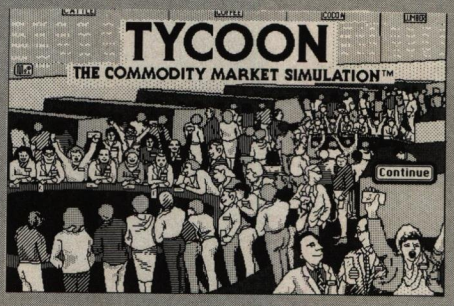

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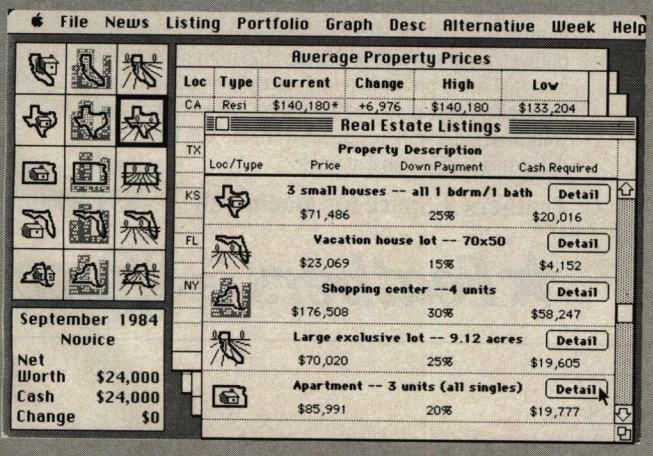

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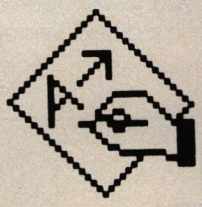

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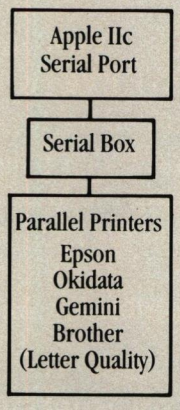

Add a parallel printer to your IIc

Here's a low cost serial to parallel adapter that comes complete with everything you need to connect your Apple's serial printer port to a standard parallel printer. This unit also allows you to print Epson Graphics. Please specify printer type.

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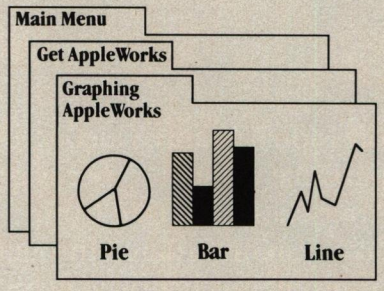

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What's even better, is that the MAC PRIVATE EYE™ will be sold through your dealer and backed by professional quality service and warranties. If your dealer isn't stocking the MAC PRIVATE EYE™ yet, (perish the thought), call or write us at:

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CIRCLE 440 ON READER SERVICE CARD

After experimenting with OverVUE for a while, I encountered several unnerving snags. One example is the Sort function, which sorts strings rather than numerical values. This method works well with text entries, but if you use it on a column of numbers, OverVUE is as sensitive to the physical length of an entry as it is to its numerical value.

In other words, during the sorting process, the program views the number 1.0 as being larger than the number 2. The same holds true for numbers preceded by a dollar sign or a minus sign. OverVUE places −10 above 30 and $3 above 4 because they are physically longer, even though they are numerically smaller. To remedy this problem, make sure all numbers have the same attributes and the same number of places after the decimal point.

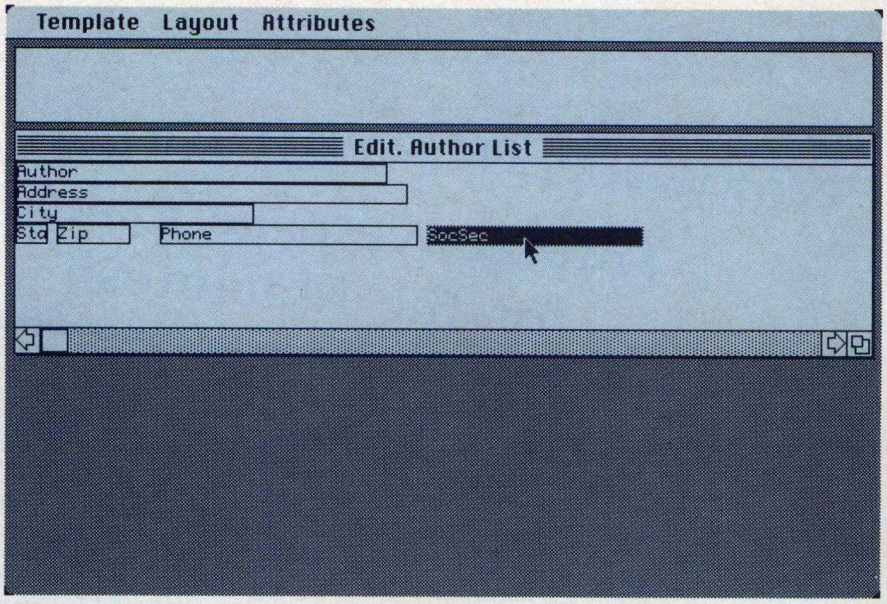

Figure 3: You can freely position fields with the mouse.

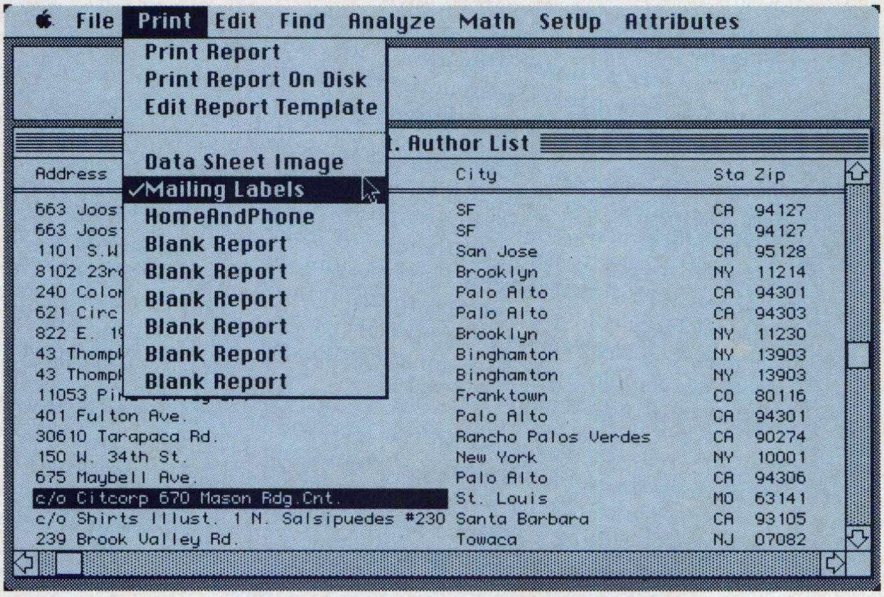

Figure 4: Each report format you create appears under its own name on the Print menu.

A related problem stems from the way in which the program displays data. You cannot specify easily that numeric data should contain a fixed number of decimal places. If you omit the decimal point and trailing zeros, the number will not appear in the proper form, nor will it sort properly if other numbers in the file are set up correctly. To get around this limitation, you can multiply an entire column by 1.0 for one place after the decimal point, 1.00 for two places, 1.000 for three places, and so on, to avoid having to type the decimal point and zeros for every entry.

When you enter data or update existing records, the program makes it much too easy to delete a record completely. After you've selected any part of a record, tapping the backspace key deletes the entire record. The deleted record goes to the clipboard, so selecting Paste from the Edit menu retrieves the record.

ProVUE Development Corporation has several enhancements planned for OverVUE, including keyboard macros, relational capabilities for joining files, and a Zoom feature to let you focus on a single record in greater detail. According to company representatives, these features should be available by the second quarter of 1985, and upgrades will be available at a nominal charge for previous purchasers of the OverVUE package.

You can cut and copy data from OverVUE for use with other packages such as MacWrite. Unfortunately, the current version has no provision for moving data into OverVUE from another package.

Clearly, speed and ease of use were the main design goals behind OverVUE, and it succeeds at meeting these goals. If speed is not the primary consideration, however, the program's storage limitations and steep price may prompt you to consider a different software package. OverVUE is priced considerably higher than most Macintosh software; at $295, the package is no casual investment.

If you are looking for an easy-to-use—and exceptionally fast—system of selecting, sorting, and analyzing data, however, then OverVUE may be the ideal package for you. ✚

Chuck Doherty is an independent computer consultant and free-lance writer from South Dartmouth, MA. His work regularly appears in computer and audio publications.

PRODUCT INFORMATION

OverVUE
ProVUE Development Corporation
222 22nd Street
Huntington Beach, CA 92648
(714) 969-2431
List Price: $295

CIRCLE 540 ON READER SERVICE CARD

ReadySetGo™
ReadySetGo
ReadySetGo

Interactive page makeup for the Macintosh™

ReadySetGo™ automates the page design and pasteup process, turning the Mac environment into a **professional graphic arts publishing system.** The system overcomes limitations of current Mac programs (such as MacWrite,™ MacPaint™ and MacDraw™) encountered when trying to use those packages for sophisticated page makeup. ReadySetGo is ideal for projects requiring a considerable artistic design component on a page-by-page basis, such as **newsletters, reports, forms, flyers, brochures, ads, resumes, letters, papers, presentations and all page proofing and layout design work.**

Pages are built dynamically from component blocks which may contain **text** or **graphics.** The blocks can be dragged around the page and/or re-sized using the mouse. A ruler shows page dimensions for visual positioning of the blocks but a unique **specification sheet** gives each block's exact design parameters and allows very accurate positioning not possible with the mouse alone.

Text may be keyboarded from scratch or brought in from other Mac programs (such as MacWrite). Either way, the system provides full text editing features with the ability to change font, style and size at any point in the copy. All regular Mac fonts are supported in addition to **real typefaces** (currently **Times** and **Helvetica** with more available soon). When text is edited or a block re-sized, the display instantly updates to reflect changes and text automatically re-fits the block. Graphics blocks can contain rules, borders, solids or pictures. **Pictures** can be brought in from other programs (such as MacPaint). All graphics automatically scale as their block is re-sized.

All standard page sizes are supported and a powerful **show page** facility provides a scaled view of the entire page. The show page display can be kept active concurrently with the actual page and is continually updated as work on the page progresses.

Pages may be stored on disk as full documents (design layout plus contents) or as "shells" (design layout only). The latter facility allows the user to reuse design templates or build an inventory of designs for future projects.

ReadySetGo pages can be printed on the Imagewriter or on **Apple's new laser printer** for superb publication quality output. Output support for the latest generation of typesetting devices is planned for the second quarter of 1985.

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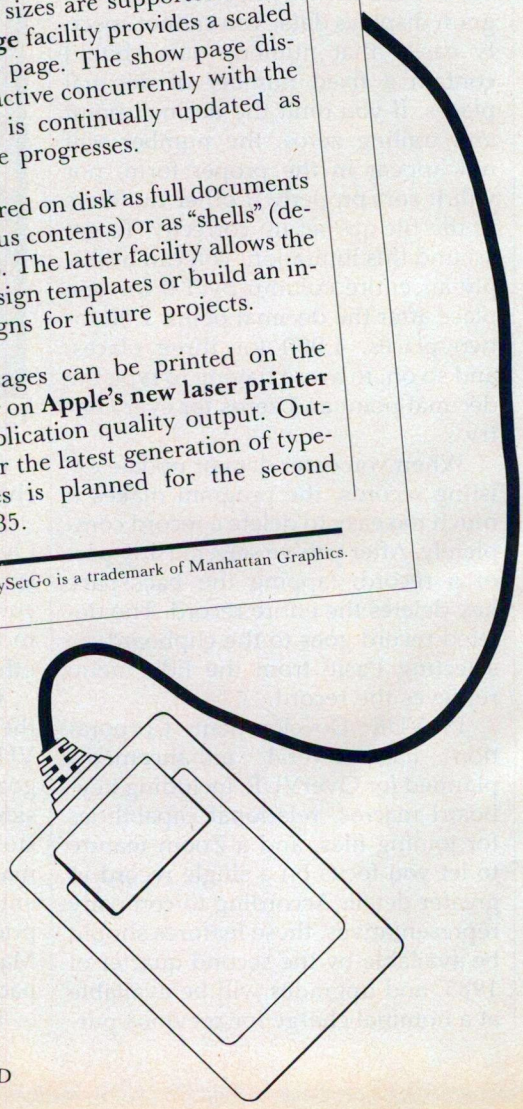

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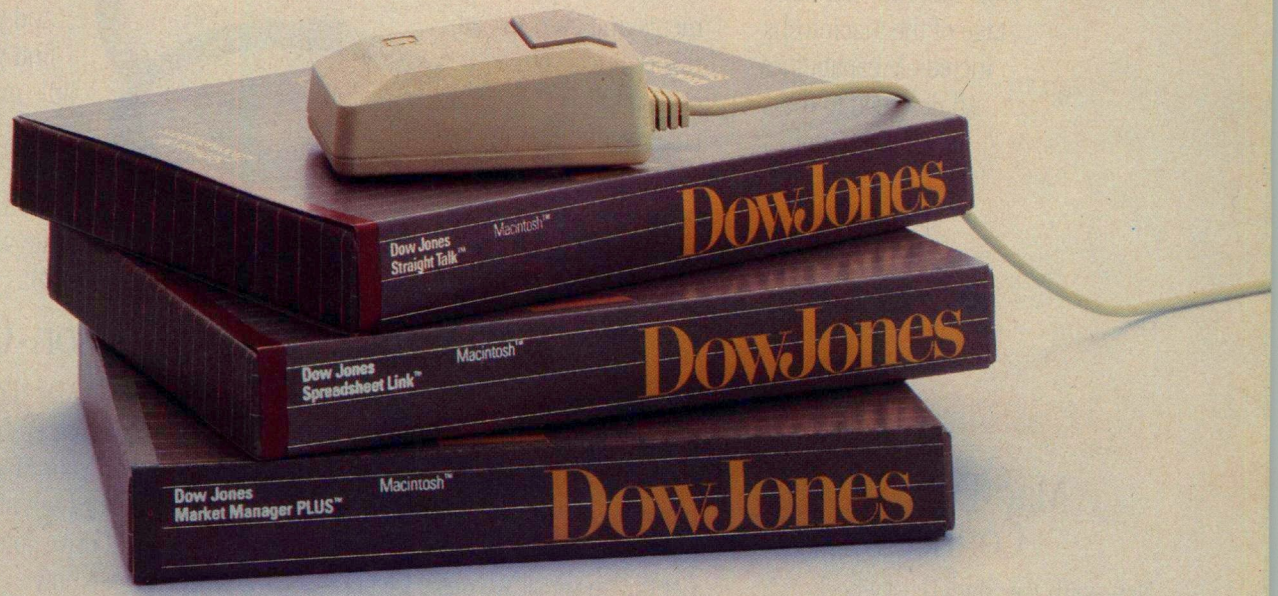

In the beginning there was Dow Jones Straight Talk.™

All across the country, Macintosh™ computers – and their owners – are getting smart with just the information they need: an electronic encyclopedia, business news and information, the latest stock quotes, sports and weather reports, airline schedules and fares. Point, click, Dow Jones News/Retrieval® and other leading electronic information services are at your fingertips.

In fact so many Macintosh computers are getting smart that Straight Talk is a best seller.

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Introducing Dow Jones Spreadsheet Link™ and Dow Jones Market Manager PLUS™ – new software for the Macintosh computer.

Dow Jones Spreadsheet Link adds brainpower to your Multiplan® spreadsheet. Just collect the financial information you need from News/Retrieval and – click – Spreadsheet Link automatically downloads it into your spreadsheet.

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How to bring out the

Out of respect for your unbridled love of the Macintosh (and ours, too), we've created even more insanely wonderful ways to enhance its remarkable performance. With five easy-to-use, useful and totally captivating tools that take full advantage of the Macintosh's incredible capabilities. All designed to the Macintosh's high standards for quality and reliability. Priced to please the most discriminating Macintosh lover.

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Now, with the Mac·Daisywheel·Connection, your Macintosh can print with any popular daisywheel letter-quality printer. Like the Apple Daisywheel Printer, the Brother (HR Series), the C-Itoh (Starwriter), the Daisywriter, the Diablo, the NEC Spinwriter, and the Qume (Letterpro and Sprint 11 Series)—just to name a few.

The Mac·Daisywheel·Connection gives you complete flexibility. You can keep your daisywheel and dot matrix printers connected to your Macintosh at all times. Just point and click to the printer you want to use.

The Mac·Daisywheel·Connection is ideal for business correspondence, reports, legal documents and even spreadsheets. It lets you print a full 15″ paper width. It comes complete with a program disk, a quick start-up guide and an interface cable. List price $99.

Mac·Spell·Right™

With Mac·Spell·Right, you can easily eliminate all the woes associated with checking and correcting spelling. This powerful new application program automatically does the work for you. Get the power of Webster's Dictionary and Roget's Thesaurus with the click of a button. Because Mac·Spell·Right works directly within MacWrite™ and runs transparently while you work, you never have to switch back and forth between disks and programs.

Think of how your productivity will improve. It won't take nearly as long to check and edit documents once you add "Spell✓" to the MacWrite menu bar.

And you may even find yourself with a little extra time on your hands to expand your vocabulary. Mac·Spell·Right gives you alternate word choices, too. List price $89.

Mac·Epson·Connection™

Thanks to the Mac·Epson·Connection, you can now use Epson dot matrix printers with your Macintosh.* Our new driver for high quality dot matrix printers will drive you wild, especially when you see how graphic

best in your Macintosh™

your graphics look and how professional your texts look. Nothing could be simpler or faster (at 160 characters per second). And it takes only 30 seconds to transfer the software to your 3½″ diskettes or hard disks.

The Mac • Epson • Connection is totally versatile, too. Anything you can print on the Imagewriter™ you can print on an Epson. The Mac • Epson • Connection is compatible with any software that runs between the Macintosh and the Imagewriter.

The Mac • Epson • Connection comes with a program disk, a quick start-up guide and an interface cable. List price $89.

*The Mac • Epson • Connection supports a wide range of printer models from Epson, including the FX 80 and 100, the RX 80 and 100 and the LQ1500.

Mac • Turbo • Touch™

The Mac • Turbo • Touch is a new high-speed direct input device (or, if you will, a turbocharged "mouse") for your Macintosh. This is not meant to imply that the legendary love affair between mouse and man is over. Rather, for those of you who are ready for something that can respond as quickly as you do, there is now an exciting option. An option that reduces the time it takes to edit a document by 40%. An option that covers the same ground the mouse covers in one-third the time and in one-fourth the desk space.

What's more, the Mac • Turbo • Touch is always right where you need it whether you're right- or left-handed because you can park it on either side of the keyboard. Where does it plug in? In the mouse port, of course.

Flexibility is only one of its many virtues. Responsive performance is another. The slightest touch of the gyroscopic ball positions the pointer quickly and accurately on the screen. Mac • Turbo • Touch makes MacWrite, MacPaint and any other software work better, faster and more precisely than before. List price $129.

Mac • Memory • Disk™

The Mac • Memory • Disk lets you access more of the memory in your 512K Macintosh. It makes interaction between software applications ten times faster. It also lets you allocate a portion of the RAM (Random Access Memory) resident in your 512K Macintosh and treat it like a disk. With the Mac • Memory • Disk, you now have immediate access to more memory. List price $29.

More For Your Macintosh

These five innovative and fun tools make it easier than ever to get to the heart of your Macintosh. For additional tips on romancing your Macintosh and a demonstration, see your local Apple Computer Dealer. Or call toll-free: 1-800-MAC-5464. In California, toll-free: 1-800-421-0243. In Canada, direct dial: 408-446-0797.

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Mac Turbo Touch

Assimilation Process™

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Mind Your Words!

You can magnify your writing abilities with Macwrite Version 3.3 and Mac•Spell•Right

While Macintosh owners and devotees who are waiting for a variety of word-processing packages are suffering from a severe case of delayed gratification, two new products offer immediate relief. Mac•Spell•Right from Assimilation Process and Apple's upgraded version of MacWrite provide some of the features previously unavailable to MacWrite users. A combination of these two products lets you create longer documents and check the spelling while you're at it.

What's New with MacWrite?

The two most important things about MacWrite Version 3.3 are that it is a disk-based system, which means document length is no longer limited to the 9–12 pages that can be held in memory, and, secondly, that it's free to current MacWrite owners.

Most of MacWrite's new features are for handling large disk-based documents. You'll notice that the scroll box has a number in it, indicating the page you are currently working on. The GoToPage # command included in the Search menu lets you move to any page in a document. The Search menu also includes a Find Next command, which lets you find words without the Find dialog box opening for every search. A box on the ruler lets you select text at six lines per inch—handy for preprinted forms and labels.

Another attractive addition to MacWrite is Format menu commands that allow you to select and align text without using rulers. You can, for example, select a line of text for a heading and choose Center from the Format menu (see figure 1). The alignment options for selected text are flush left; flush right; centered; full justified; or default, which will align the text according to the previous ruler. Eliminating the need for rulers for each alignment change is a real improvement. For all of us keyboard addicts, Apple has included optional keystroke commands to perform these operations.

How Many Is Too Many?

If longer documents are something you've been wishing for, as I have, allow me to share with you some foibles of the new MacWrite. As an inveterate writer of lengthy documents (in spite of MacWrite), I have adjusted to dividing them up into shorter files and joining them together at printing time. My dream has been to convert these truncated documents into one massive tome.

MacWrite 3.3 automatically converts documents created on an older version of MacWrite so they're usable on the newer version. When you open older-version files, the program informs you `This document is being converted and will open as Untitled`. Your original file on disk will remain unconverted. Once you've converted documents, you cannot open them anymore with the earlier MacWrite version.

I set out to consolidate my files to form my dream document. Alas, I forgot about the RAM limitation. Obviously, if you have a MacWrite document that is using most of your memory, you won't be able to copy the entire document to the clipboard to paste into another document. You may also encounter the first of several new and interesting dialog boxes: `You may only cut or copy 100 paragraphs at a time`. I happened to be working with a document that had a lot of carriage returns. As it turned out, I was able to copy only about 2½ pages of my file at a time. This process is tedious, but you probably won't be suffering through it very often.

I continued to consolidate, and I eventually encountered yet another interesting dialog box: `This operation will give the document too many paragraphs.` Too many is somewhere around 460 paragraphs. I was still dreaming about the great American novel, so I took to creating longer paragraphs. After all, I could create a document of considerable length if it had long paragraphs, right? Wrong. The next dialog box informed me `This operation will create a paragraph that is too long.` Paragraph length is limited to 3000 characters (slightly more than three-quarters of a single-spaced page). So, if I kept my paragraphs at the maximum of 3000 words, I could have a 345-page document, provided I had disk space to store it. In practice, with my short paragraphs, I couldn't get

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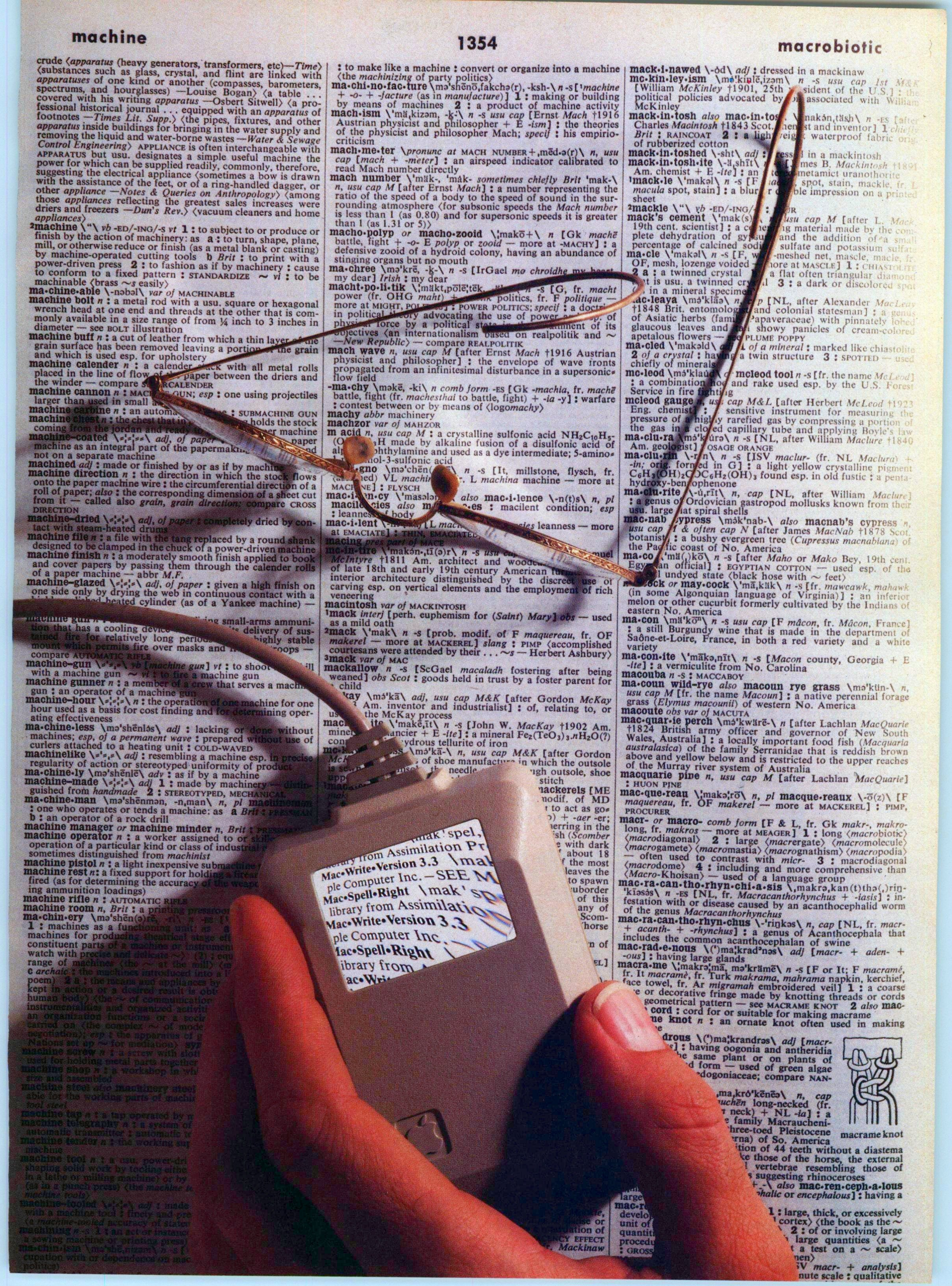

crude ⟨*apparatus* (heavy generators, transformers, etc)—*Time*⟩ ⟨substances such as glass, crystal, and flint are linked with *apparatuses* of one kind or another (compasses, barometers, spectrums, and hourglasses) —Louise Bogan⟩ ⟨a table . . . covered with his writing *apparatus* —Osbert Sitwell⟩ ⟨a professional historical journal . . . equipped with an *apparatus* of footnotes —*Times Lit. Supp.*⟩ ⟨the pipes, fixtures, and other *apparatus* inside buildings for bringing in the water supply and removing the liquid and water-borne wastes —*Water & Sewage Control Engineering*⟩ APPLIANCE is often interchangeable with APPARATUS but usu. designates a simple useful machine the power for which can be supplied readily, commonly, therefore, suggesting the electrical appliance ⟨sometimes a bow is drawn with the assistance of the feet, or of a ring-handled dagger, or other *appliance* —*Notes & Queries on Anthropology*⟩ ⟨among those *appliances* reflecting the greatest sales increases were driers and freezers —*Dun's Rev.*⟩ ⟨vacuum cleaners and home *appliances*⟩

²machine \"\ *vb* -ED/-ING/-S *vt* **1 :** to subject to or produce or finish by the action of machinery: as **a :** to turn, shape, plane, mill, or otherwise reduce or finish (as a metal blank or casting) by machine-operated cutting tools **b** *Brit* **:** to print with a power-driven press **2 :** to fashion as if by machinery **:** cause to conform to a fixed pattern **:** STANDARDIZE ~ *vi* **:** to be machinable ⟨brass ~*s* easily⟩

ma·chine·able \-nəbəl\ *var of* MACHINABLE

machine bolt *n* **:** a metal rod with a usu. square or hexagonal wrench head at one end and threads at the other that is commonly available in a size range of from ¼ inch to 3 inches in diameter — see BOLT illustration

machine buff *n* **:** a cut of leather from which a thin layer of the grain surface has been removed leaving a portion of the grain and which is used esp. for upholstery

machine calender *n* **:** a calender stack with all metal rolls placed in the line of flow of the paper between the driers and the winder — compare SUPERCALENDER

machine cannon *n* **:** MACHINE GUN; *esp* **:** one using projectiles larger than used in small arms

machine carbine *n* **:** an automatic rifle **:** SUBMACHINE GUN

machine chest *n* **:** the chest that in a holds the stock coming from the jordan and ready to paper machine

machine–coated \ adj, *of paper* **:** paper machine as an integral part of the papermaking and not on a separate machine

machined *adj* **:** made or finished by or as if by machine

machine direction *n* **:** the direction in which the stock flows onto the paper machine wire **:** the circumferential direction of a roll of paper; *also* **:** the corresponding dimension of a sheet cut from it — called also *grain, grain direction;* compare CROSS DIRECTION

machine–dried \ *adj, of paper* **:** completely dried by contact with steam-heated drums

machine file *n* **:** a file with the tang replaced by a round shank designed to be clamped in the chuck of a power-driven machine

machine finish *n* **:** a moderately smooth finish applied to book and cover papers by passing them through the calender rolls of a paper machine — abbr *M.F.*

machine–glazed \ *adj, of paper* **:** given a high finish on one side only by drying the web in continuous contact with a heated cylinder (as of a Yankee machine) —

machine gun small-arms ammunition that has a cooling device delivery of sustained fire for relatively long periods highly stable mount which permits fire over masks and troops — compare AUTOMATIC RIFLE

machine–gun \ *vb* [*machine gun*] *vt* **:** to shoot kill with a machine gun ~ *vi* **:** to fire a machine gun

machine gunner *n* **:** a member of a crew that serves a machine gun **:** an operator of a machine gun

machine–hour \ *n* **:** the operation of one machine for one hour used as a basis for cost finding and for determining operating effectiveness

ma·chine·less \mə'shēnləs\ *adj* **:** lacking or done without machines; *esp, of a permanent wave* **:** prepared without use of curlers attached to a heating unit **:** COLD-WAVED

machinelike \ *adj* **:** resembling a machine esp. in precise regularity of action or stereotyped uniformity of product

ma·chine·ly \mə'shēnlē\ *adv* **:** as if by a machine

machine–made \ *adj* **1 :** made by machinery — distinguished from *handmade* **2 :** STEREOTYPED, MECHANICAL

ma·chine·man \mə'shēnmən, -n,man\ *n, pl* **machinemen** **:** one who operates or tends a machine: as **a** *Brit* **:** PRESSMAN **b :** an operator of a rock drill

machine manager *or* **machine minder** *n, Brit* **:** PRESSMAN

machine operator *n* **:** a worker assigned to or skilled in operation of a particular kind or class of industrial machine — sometimes distinguished from *machinist*

machine pistol *n* **:** a light inexpensive submachine gun

machine rest *n***:** a fixed support for holding a firearm fired (as for determining the accuracy of the weapon ing ammunition loadings)

machine rifle *n* **:** AUTOMATIC RIFLE

machine room *n, Brit* **:** a printing pressroom

ma·chin·ery \mə'shēn(ə)rē, -ri\ *n* -ES **1 :** machines as a functioning unit: as **a** machines for producing theatrical stage effects constituent parts of a machine or instrument watch with precise and delicate ~⟩ range of machines ⟨the ~ at the mill⟩ **c** *archaic* **:** the machines introduced into a poem) **2 a :** the means and appliances by kept in action or a desired result is obtained human body⟩ ⟨the ~ of communication instrumentalities and organized activity an organization functions or a social carried on ⟨the complex ~ of modern negotiation⟩; *esp* **:** the apparatus of Nations set up ~ for mediation⟩

machine screw *n* **:** a screw with slotted used for holding metal parts together

machine shop *n* **:** a workshop in which size and assembled

machine steel *also* **machinery steel** able for the working parts of machines tool steel

machine tap *n* **:** a tap operated by

machine telegraphy *n* **:** a system of automatic transmitter **:** automatic

machine tender *n* **:** the working machine

machine tool *n* **:** a usu. power-driven shaping solid work by tooling either in a lathe or milling machine) or by (as in a punch press) ⟨the *machine tools*⟩

machine–tooled \ *adj* **:** made with a machine tool **:** finely and precisely ⟨a *machine-tooled* accuracy of statement⟩

machining *n* -S **1 :** an act or instance a sewing machine or printing press)

ma·chin·ism \mə'shē,nizəm\ *n* -S cupation with or dependence on machines politics)

: to make like a machine **:** convert or organize into a machine ⟨the *machinizing* of party politics⟩

ma·chi·no·fac·ture \mə'shēnō,fakchə(r), -ksh-\ *n* -S [¹*machine* + *-o-* + *-facture* (as in *manufacture*)] **1 :** making or building by means of machines **2 :** a product of machine activity

mach·ism \'mä,kizəm, -k̟-\ *n* -S *usu cap* [Ernst *Mach* †1916 Austrian physicist and philosopher + E *-ism*] **:** the theories of the physicist and philosopher Mach; *specif* **:** his empiriocriticism

mach·me·ter *pronunc at* MACH NUMBER + ,mēd·ə(r)\ *n, usu cap* [*mach* + *-meter*] **:** an airspeed indicator calibrated to read Mach number directly

mach number \'mäk-, 'mak- *sometimes chiefly Brit* 'mak-\ *n, usu cap M* [after Ernst *Mach*] **:** a number representing the ratio of the speed of a body to the speed of sound in the surrounding atmosphere ⟨for subsonic speeds the *Mach number* is less than 1 (as 0.80) and for supersonic speeds it is greater than 1 (as 1.31 or 5)⟩

macho·polyp *or* **macho·zooid** \'makō+\ *n* [Gk *machē* battle, fight + *-o-* E *polyp* or *zooid* — more at -MACHY] **:** a defensive zooid of a hydroid colony, having an abundance of stinging organs but no mouth

ma·chree \mə'krē, -k̟-\ *n* -S [IrGael *mo chroidhe* my heart, my dear] *Irish* **:** my dear

macht·po·li·tik \'mäkt,pōlē,tēk\ *n* -S [G, fr. *macht* power (fr. OHG *maht*) + *politik* politics, fr. F *politique* — more at MIGHT, POLITICS] **:** POWER POLITICS; *specif* **:** a doctrine in political theory advocating the use of power esp. of physical force by a political state in the attainment of its objectives ⟨an internationalism based on realpolitik and ~ —*New Republic*⟩ — compare REALPOLITIK

mach wave *n, usu cap M* [after Ernst *Mach* †1916 Austrian physicist and philosopher] **:** the envelope of wave fronts propagated from an infinitesimal disturbance in a supersonic flow field

-ma·chy \məkē, -ki\ *n comb form* -ES [Gk *-machia*, fr. *machē* battle, fight (fr. *machesthai* to battle, fight) + *-ia* -y] **:** warfare **:** contest between or by means of ⟨logo*machy*⟩

machy *abbr* machinery

machzor *var of* MAHZOR

m acid *n, usu cap M* **:** a crystalline sulfonic acid $NH_2C_{10}H_5(OH)SO_3H$ made by alkaline fusion of a disulfonic acid of alphanaphthylamine and used as a dye intermediate; 5-amino-1-naphthol-3-sulfonic acid

ma·ci·gno \mə'chēn(y)ō\ *n* -S [It, millstone, flysch, fr. (assumed) VL *machinius*, fr. L *machina* machine — more at MACHINE] **:** FLYSCH

mac·i·len·cy \'masələnsē\ *also* **mac·i·lence** \-n(t)s\ *n, pl* **macilencies** *also* **macilences** **:** macilent condition; *esp* **:** leanness of body

mac·i·lent \ [L *macilentus*, fr. *macies* leanness — more at EMACIATE] **:** THIN, EMACIATED

macing *pres part of* MACE

mc·in·tire \'makən-,tī(ə)r\ *n* -S *usu cap* [after Samuel *McIntyre* †1811 Am. architect and woodcarver] **:** a style of late 18th and early 19th century American furniture and interior architecture distinguished by the discreet use of carving esp. on vertical elements and the employment of rich veneering

macintosh *var of* MACKINTOSH

¹mack *interj* [perh. euphemism for (*Saint*) *Mary*] *obs* — used as a mild oath

²mack \'mak\ *n* -S [prob. modif. of F *maquereau*, fr. OF *makerel* — more at MACKEREL] *slang* **:** PIMP ⟨accomplished courtesans were attended by their . . . ~*s* — Herbert Ashbury⟩

³mack *var of* MAC

mackallow *n* -S [ScGael *macaladh* fostering after being weaned] *obs Scot* **:** goods held in trust by a foster parent for a child

mckay \mə'kā\ *adj, usu cap M&K* [after Gordon *McKay* †1903 Am. inventor and industrialist] **:** of, relating to, or used in the McKay process

mac·kay·ite \'makē,īt\ *n* -S [John W. *MacKay* †1902 Am. mining financier + E *-ite*] **:** a mineral $Fe_2(TeO_3)_3.nH_2O(?)$ consisting of a hydrous tellurite of iron

mc·kay process \mə'kā-\ *n, usu cap M&K* [after Gordon McKay] **:** a method of shoe manufacture in which the outsole is sewn to the insole with the needle through outsole, shoe upper stitch

mackerels [ME modif. of MD to act as go-) + *-aer* -er; herring in the ish (*Scomber* with dark about 18 the most leaves the to spawn suborder of this any of Scom- horse of EL] ise or uation of ENCY EFFECT *Mackinaw*

mack·i·nawed \-ȯd\ *adj* **:** dressed in a mackinaw

mc·kin·ley·ism \mə'kinlē,izəm\ *n* -S *usu cap 1st M&K* [William *McKinley* †1901, 25th president of the U.S.] **:** the political policies advocated by or associated with William McKinley

mack·in·tosh *also* **mac·in·tosh** \'makən,täsh\ *n* -ES [after Charles *Macintosh* †1843 Scot. chemist and inventor] **1** *chiefly Brit* **:** RAINCOAT **2 :** a lightweight waterproof fabric orig. of rubberized cotton

mack·in·toshed \-sht\ *adj* **:** dressed in a mackintosh

mack·in·tosh·ite \-ä,shīt\ *n* -S [James B. *Mackintosh* †1891 Am. chemist + E *-ite*] **:** an altered metamict uranothorite

¹mack·le \'makəl\ *n* -S [F *macule*, spot, stain, mackle, fr. L *macula* spot, stain] **:** a blur or double impression on a printed sheet

²mackle \"\ *vb* -ED/-ING/-S **:** BLUR

mack's cement \'mak(s)-\ *n, usu cap M* [after L. *Mack*, 19th cent. scientist] **:** a cementing material made by the complete dehydration of gypsum and the addition of a small percentage of calcined sodium sulfate and potassium sulfate

ma·cle \'makəl\ *n* -S [F, wide-meshed net, mascle, macle, fr. OF, mesh, lozenge voided — more at MASCLE] **1 :** CHIASTOLITE **2 a :** a twinned crystal **b :** a flat often triangular diamond that is usu. a twinned crystal **3 :** a dark or discolored spot in a mineral specimen

mac·leaya \mə'klāə\ *n, cap* [NL, after Alexander *MacLeay* †1848 Brit. entomologist and colonial statesman] **:** a genus of Asiatic herbs (family Papaveraceae) with pinnately lobed glaucous leaves and tall showy panicles of cream-colored apetalous flowers — see PLUME POPPY

ma·cled \'makəld\ *adj* **1** *of a mineral* **:** marked like chiastolite **2** *of a crystal* **:** having a twin structure **3 :** SPOTTED — used chiefly of minerals

mc·leod \mə'klaůd\ *or* **mcleod tool** *n* -S [fr. the name *McLeod*] **:** a combination hoe and rake used esp. by the U.S. Forest Service in fire fighting

mcleod gauge *n, usu cap M&L* [after Herbert *McLeod* †1923 Eng. chemist] **:** a sensitive instrument for measuring the pressure of a highly rarefied gas by compressing a portion of the gas in a closed capillary tube and applying Boyle's law

ma·clu·ra \mə'klůrə\ *n* -S [NL, after William *Maclure* †1840 Am. geologist] **:** OSAGE ORANGE

ma·clu·rin \-rən\ *n* -S [ISV *maclur-* (fr. NL *Maclura*) + *-in;* orig. formed in G] **:** a light yellow crystalline pigment $C_6H_3(OH)_2COC_6H_2(OH)_3$ found esp. in old fustic **:** a pentahydroxy-benzophenone

ma·clu·rite \-ů,rīt\ *n, cap* [NL, after William *Maclure*] **:** a genus of Ordovician gastropod mollusks known from their usu. large flat spiral shells

mac·nab cypress \mək'nab-\ *also* **macnab's cypress** *n, usu cap M & often cap N* [after James *MacNab* †1878 Scot. botanist] **:** a bushy evergreen tree (*Cupressus macnabiana*) of the Pacific coast of No. America

ma·co \'mä(,)kō\ *n* -S [after *Maho* or *Mako* Bey, 19th cent. Egyptian official] **:** EGYPTIAN COTTON — used esp. of the cotton in the undyed state ⟨black hose with ~ feet⟩

ma·cock *or* **may·cock** \'mā,käk\ *n* -S [fr. *mawcawk, mahawk* (in some Algonquian language of Virginia)] **:** an inferior melon or other cucurbit formerly cultivated by the Indians of eastern No. America

ma·con \mä'kōⁿ\ *n* -S *usu cap* [F *mâcon*, fr. *Mâcon*, France] **:** a still Burgundy wine that is made in the department of Saône-et-Loire, France, in both a red variety and a white variety

ma·con·ite \'mākə,nīt\ *n* -S [*Macon* county, Georgia + E *-ite*] **:** a vermiculite from No. Carolina

macouba *n* -S **:** MACCABOY

ma·coun wild-rye *also* **macoun rye grass** \mə'kün-\ *n, usu cap M* [fr. the name *Macoun*] **:** a native perennial forage grass (*Elymus macounii*) of western No. America

macoute *obs var of* MACUTA

mac·quar·ie perch \mə'kwärē-\ *n* [after Lachlan *MacQuarie* †1824 British army officer and governor of New South Wales, Australia] **:** a locally important food fish (*Macquaria australasica*) of the family Serranidae that is reddish brown above and yellow below and is restricted to the upper reaches of the Murray river system of Australia

macquarie pine *n, usu cap M* [after Lachlan *MacQuarie*] **:** HUON PINE

mac·que·reau \'makə,rō\ *n, pl* **macque·reaux** \-ō(z)\ [F *maquereau*, fr. OF *makerel* — more at MACKEREL] **:** PIMP, PROCURER

macr- *or* **macro-** *comb form* [F & L, fr. Gk *makr-, makro-* long, fr. *makros* — more at MEAGER] **1 :** long ⟨*macro*biotic⟩ ⟨*macro*diagonal⟩ **2 :** large ⟨*macr*ergate⟩ ⟨*macro*molecule⟩ ⟨*macro*gamete⟩ ⟨*macro*mastia⟩ ⟨*macro*gnathism⟩ ⟨*macro*podia⟩ — often used to contrast with *micr-* **3 :** macrodiagonal ⟨*macro*dome⟩ **4 :** including and more comprehensive than ⟨*Macro*-Khoisan⟩ — used of a language group

mac·ra·can·tho·rhyn·chi·a·sis \,makrə,kan(t)thə(,)riŋ'kīəsəs\ *n* -ES [NL, fr. *Macracanthorhynchus* + *-iasis*] **:** infestation with or disease caused by an acanthocephalid worm of the genus *Macracanthorhynchus*

mac·ra·can·tho·rhyn·chus \-'riŋkəs\ *n, cap* [NL, fr. *macr-* + *acanth-* + *-rhynchus*] **:** a genus of Acanthocephala that includes the common acanthocephalan of swine

mac·rad·e·nous \(')ma'kradᵊnəs\ *adj* [*macr-* + *aden-* + *-ous*] **:** having large glands

macra·me \'makrə,mā, mə'krämē\ *n* -S [F or It; F *macramé*, fr. It *macramè*, fr. Turk *makrama, mahrama* napkin, kerchief, face towel, fr. Ar *migramah* embroidered veil] **1 :** a coarse lace or decorative fringe made by knotting threads or cords in a geometrical pattern — see MACRAME KNOT **2** *also* **macrame cord :** cord for or suitable for making macrame

macrame knot *n* **:** an ornate knot often used in making macrame

macrandrous \(')ma'krandrəs\ *adj* [*macr-* + *-androus*] **:** having oogonia and antheridia on the same plant or on plants of similar form — used of green algae of the Oedogoniaceae; compare NAN-

macrame knot

,ma,krō'kēnēə\ *n, cap* *auchēn* long-necked (fr. neck) + NL *-ia*] **:** a family Macraucheniidae three-toed Pleistocene of So. America dentition of 44 teeth without a diastema like those of the horse, the external vertebrae resembling those of suggesting rhinoceroses

also **mac·ren·ceph·a·lous** *cephalic* or *encephalous*] **:** having a large

mac·r develo unit of quantiti procedu **:** GROSS

1 : large, thick, or excessively cortex⟩ ⟨the book as the ~ **2 :** of or involving large large quantities ⟨a ~ a test on a ~ scale⟩ men⟩ ISV *macr-* + *analysis*] nute scale **:** qualitative

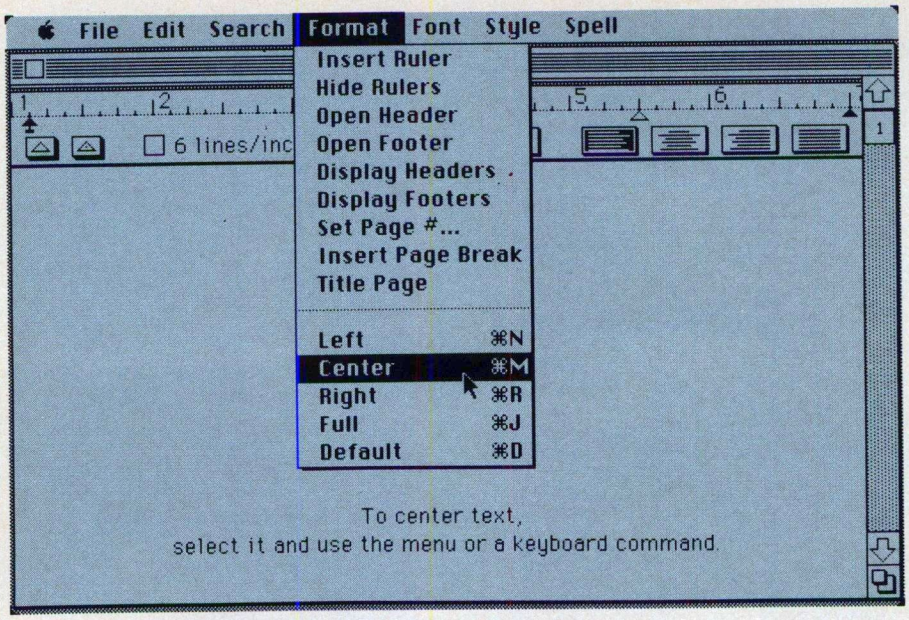

Figure 1: New Format commands let you align text without rulers.

beyond about 24 single-spaced pages—not my idea of a massive tome. Nevertheless, this version is a vast improvement over the original.

Management of larger documents would be easier if the new MacWrite had two more improvements. One is a Print Selection Only command, which would let you print a part of your file without making you cut out the rest. I'd also like to be able to open a second file at the end of an already open file—a possible solution to the consolidation problem. I expect these features on future upgrades.

Of the two kinds of people in the world (those who can spell and those who can't), I happen to be among the former; furthermore, I have editors. The idea of a spelling checker seemed questionable to me until someone pointed out that spelling checkers can find typographical errors.

If spelling or typing is the bane of your existence, you'll want to hear more about Mac•Spell•Right. The product is both a spelling checker and a thesaurus and works with the upgraded version of MacWrite. After you add Mac•Spell•Right to your MacWrite disk, you see an additional item on the menu bar when you open MacWrite. The menu is entitled Spell and has two parts called Check and Thesaurus. You can use both parts while you're working with MacWrite files.

Using the spelling checker is like using a Find command, beginning where you've set the insertion point. The words in your document are compared to the 40,000+ words in the program's dictionary. Whenever Mac•Spell•Right encounters a word that does not match anything in the dictionary, it highlights the word. When you choose Check from the Spell menu, you'll see a dialog box (see figure 2). Clicking on Find Next causes the program to highlight the next word in your document that it can't find in its dictionary.

When a word is highlighted, you have several options. If you're lucky enough to know how to spell it, you can correct it. If the word is properly spelled but not in the dictionary (e.g., MacGillicuddy, drosophila, pas de deux), you can click on Add Dictionary, which adds it permanently to the dictionary. You can supplement the dictionary with up to 1000 of your own words. If you click on Add Document, however, the word will be added to the dictionary only temporarily, remaining there until you close the document.

Mac•Spell•Right provides you with what Assimilation Process refers to as "the word most similar" to your misspelled word. This "similar" word appears in the dialog box after **Change to**. The program matches your misspelled word, letter by letter, starting with the first letter and working its way through the word. Thus, if you typed *highwau* instead of *highway*, the correct word would appear in the dialog box. Should you have the misfortune to spell *aficionado* with two *f*'s, however, the word in the dialog box will be *affidavit*.

The up and down arrows allow you to scroll through the dictionary to find the word you're looking for. If you suspect that the word requires only one *f*, you can scroll up and find the correctly spelled word. If you're a true nonspeller, however, and don't have the foggiest, the program won't be much help. It's another example of that old saw, "How can I look it up in the dictionary if I don't know how to spell it?"

If you do find the word in the dictionary, clicking on Change will replace your misspelled word with the correct one; you don't have to retype the word (see figure 3).

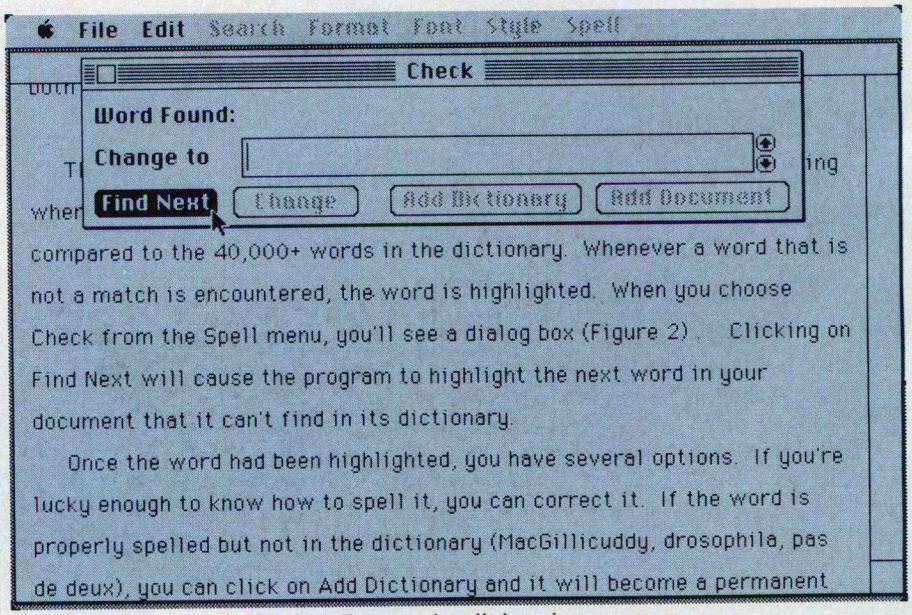

Figure 2: Clicking on Find Next finds the next misspelled word.

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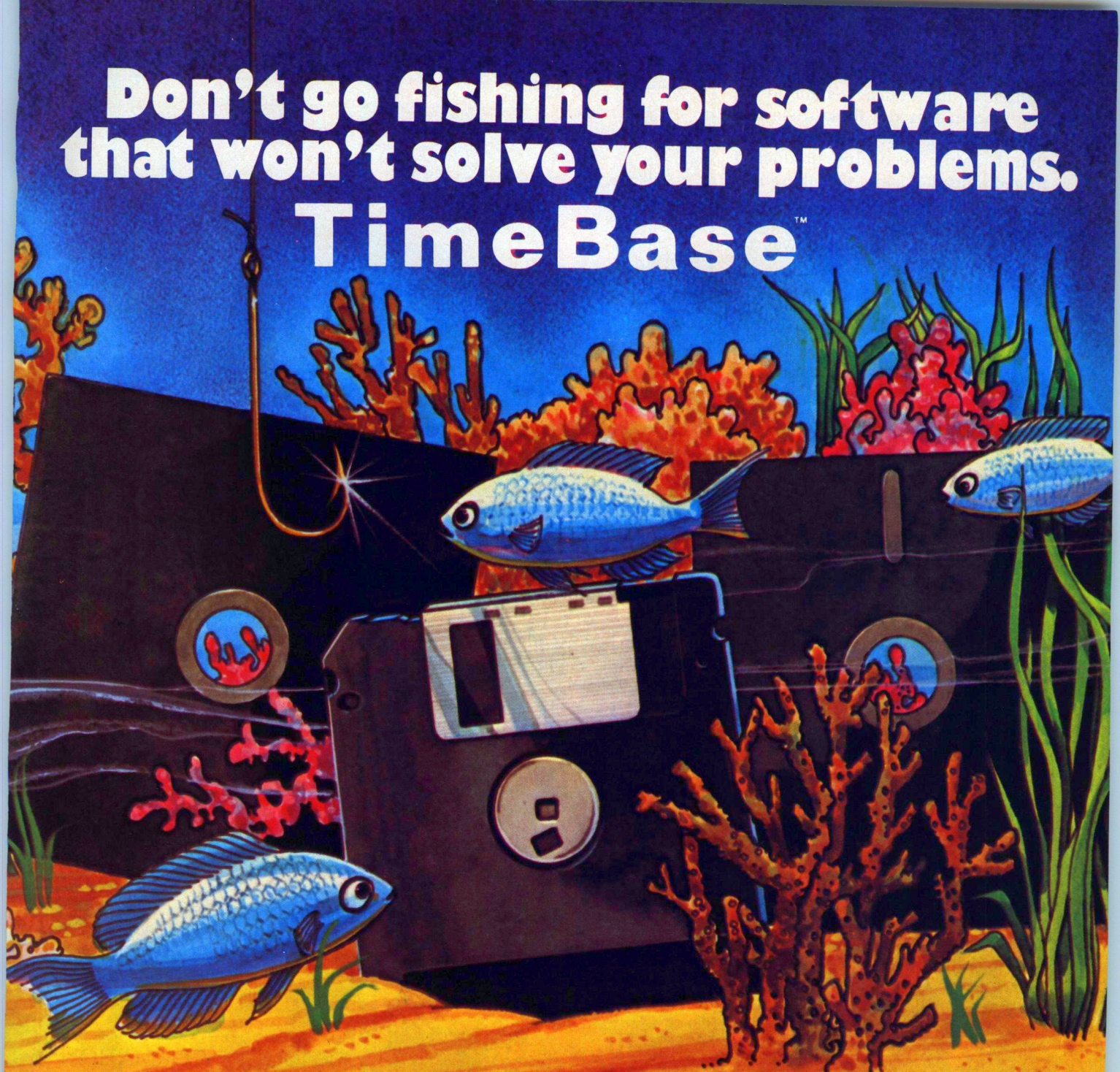

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CIRCLE 452 ON READER SERVICE CARD

A random survey of a very small sample of my colleagues found no one who had used a thesaurus since college. Going under the assumption that I didn't need this product, I forged ahead. Using the thesaurus was easy, easier than using the one on your dusty bookshelf, and having synonyms at my fingertips was far handier than I'd imagined.

When you choose Thesaurus from the Spell menu, you'll see a dialog box with three columns of 15 words in it. This initial box of words is a window on the so-called Index level of the thesaurus. The list, which contains 16,000 words, has all the root words of the spelling checker's dictionary. Within this level, you can move to any letter of the alphabet by typing the letter of your choice or using the scroll box. Many of the words in the list are boldface, which indicates that they are "thesaurus entries." You can open them to get to the Category level of related words. For example, opening *document* presents four categories: *circumstance, evidence, record,* and *writing*. Opening the *record* category presents the Synonym level, which contains words related—quite loosely, in some cases—to *document* as a record and displays 135 words, from *account* to *yearbook* (see figure 4).

A pause button in the dialog box lets you stop the display at any time. Once you've found a related word you like, you can copy it for pasting into your document. To exit from the thesaurus, you'll have to click to close each level.

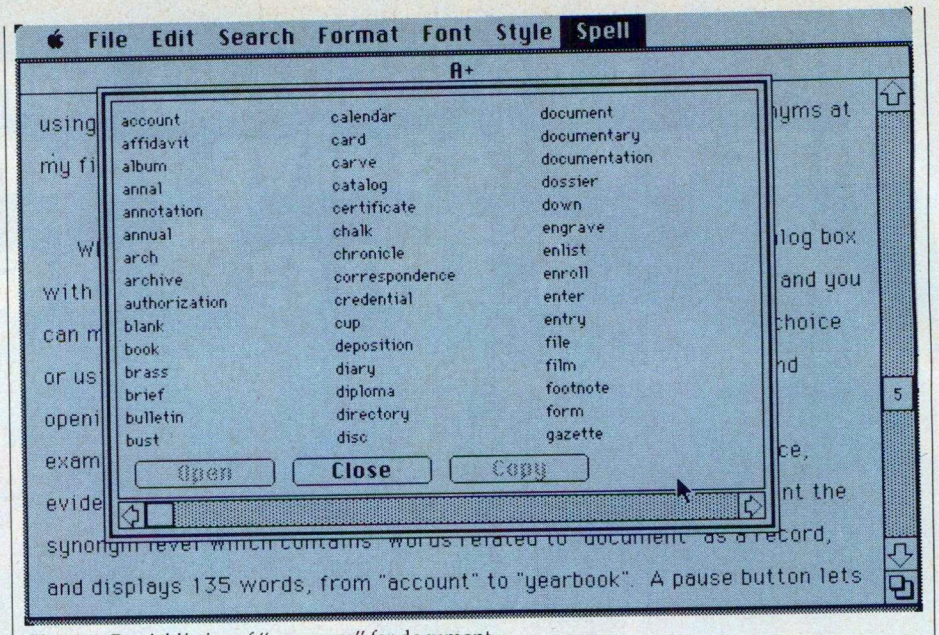

Figure 4: Partial listing of "synonyms" for document

Having an instantly accessible thesaurus demonstrates how computers can actually help you improve your writing. It makes something you might not bother to do so easy that now you'll do it. Those of us who wouldn't reach for a thesaurus might point and click for one. Whether you're looking for weird words or sibilant synonyms, a thesaurus can help you out.

Mac•Spell•Right takes up quite a bit of disk space, and Assimilation Process provides two versions in the package. One contains only the speller; the other contains both the speller and the thesaurus. The combined version requires a second disk drive. You can use the spelling program with a single-drive system if you create a stripped-down disk.

The company recommends removing the scrapbook and unnecessary fonts from the disk. If you have a single-drive system, you should ask your dealer, before you buy, exactly how much space you'll have left over for storing documents. Your dealer is also the person who can give you your free copy of Version 3.3 of MacWrite if you bring in your old MacWrite disk. ✚

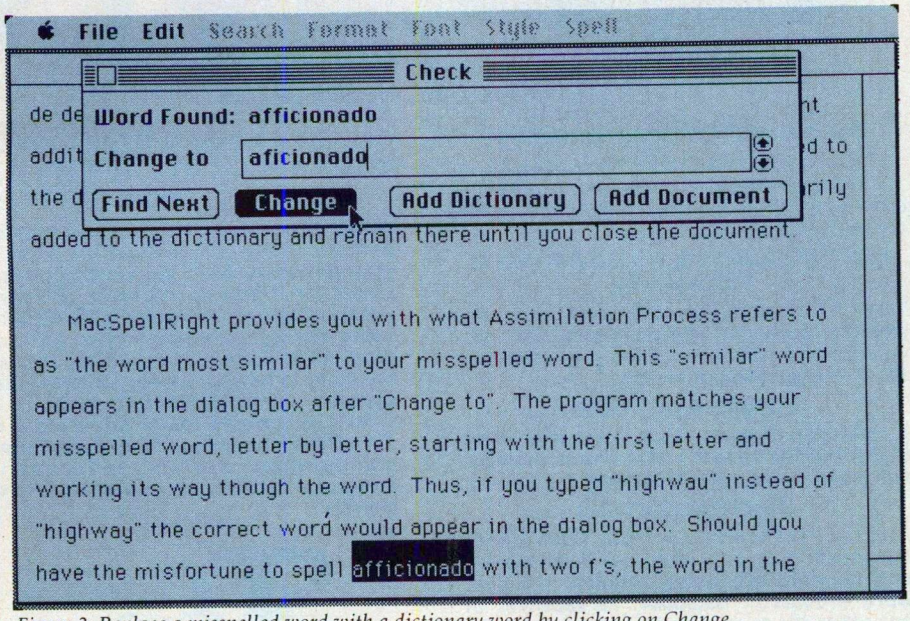

Figure 3: Replace a misspelled word with a dictionary word by clicking on Change.

Sue Crissman is a San Francisco Bay Area writer, consultant, and contributing editor to A+. Her consulting clients include Apple and other computer companies for whom she designs and writes training, sales, and promotional materials.

PRODUCT INFORMATION

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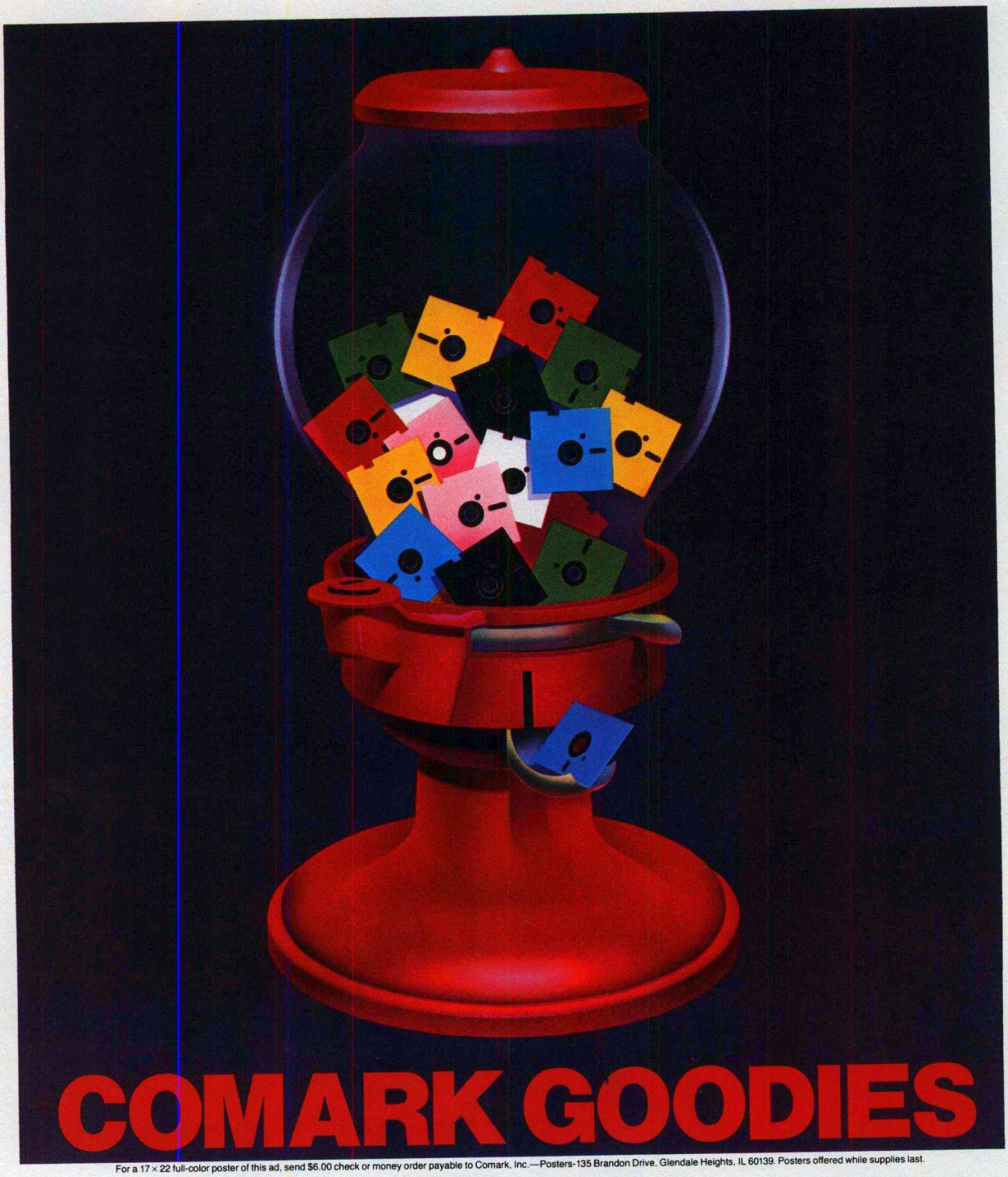

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CIRCLE 426 ON READER SERVICE CARD

Deeper into the Assembler

More introductory programming on the Macintosh

Last month I promised I would wrap up our look at a simple Mac assembly-language program in this month's column. Well, not quite. This month we'll put together the first portions of the code, examining them in depth; next month we'll finish up and take a quick look at the debugger. In future columns we'll examine some of the other languages popping up for the Macintosh, including some C compilers, MacForth, and another assembler.

Figure 1 illustrates the process we'll be using to create a final program from the miscellaneous files we're collecting. Note that we *must* create three files: the assembly source-code file, a linker-instruction file, and the resource file. We use the editor (EDIT) that accompanies the assembler to create all three of these files. For the simple program we're putting together, we'll perform each of these steps individually, but do note that the assembler includes an EXEC program that allows you to automate the process, once you've created all of your three source files (and a special EXEC instruction file).

Figure 2 is the assembly-language source code for the first part of our program (we'll look at the rest next month). I've separated the major sections of the code from each other with dashes. Within each line of dashes is a number that will serve as a section label in the following discussion.

In the beginning (section 1), we make sure to include the packed symbol tables for several predefined items. MacDefs.D contains basic system references, such as the location of global variables and other important memory locations within the Macintosh memory map. The primary information about the ROM routines that are callable from assembly language is included in HeapDefs.D, MacTraps.D, and ToolEqu.D.

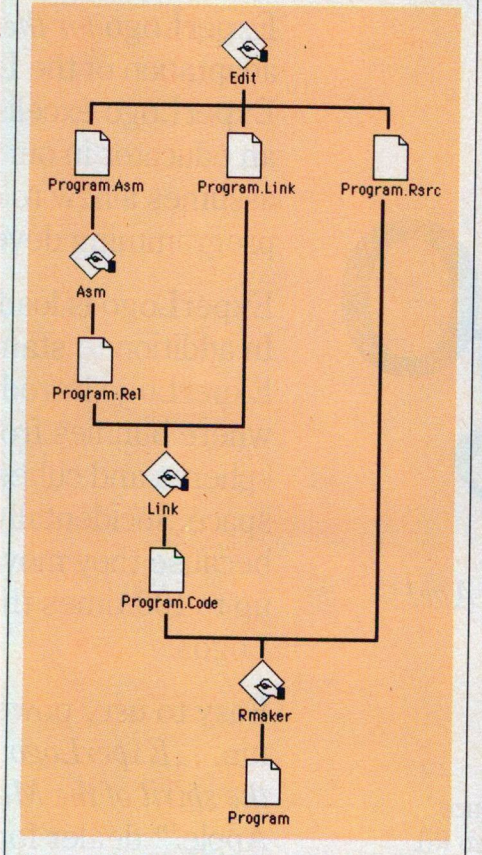

Figure 1: The assembly-language programming process. Note: this figure assumes you want to combine program code with resource information.

You can include the original source files that you used to generate the packed symbol files, but doing so lengthens the assembly process. You may even want to build your own Include file that has only routines you use in your programming, so you can provide names that are meaningful to you. For our purposes, however, the Apple-provided names and files are adequate.

Section 2 of the code begins the initialization process. Here we've performed the initialization calls for QuickDraw, the font manager, the window manager, the menu manager, and the dialog manager. *Inside Macintosh* describes many more resource managers, and, if we were using any of them (such as the text editor, named TEdit), we would be initializing them here, also. Note the Apple convention of preceding all ROM trap routines with an underline. They alert casual readers that these lines are something special.

In section 3 of the code, we open up our resource file for use. Normally, this routine is much longer (and coded slightly differently), but I've attempted to retain only the core of each routine so that you can see the required portion of each ROM routine use. The _OpenResFile routine, for instance, requires that the last stack item points to the name of the file to be used (thus the PEA 'A+' instruction). Note, however, that the

Assembly-Language Source Code for Dialog-Box Program

```
;Dialog box example for A+
;
;This assembly language program for the Macintosh displays the
;dialog box in the A+.Rsrc file and waits for the user to click the
;mouse in one of the boxes before exiting.
;
;----(1)-----------------------------------------------------------
;
include MacDefs.d          ;you must include certain files with
include HeapDefs.d         ;Macintosh specific information
include MacTraps.d
include ToolEqu.d
;
;----(2)-----------------------------------------------------------
;
;initialization
;
        PEA     -4(A5)     ;get the managers init location ready
        _InitGraf          ;initialize quickdraw
        _InitFont          ;initialize the font manager
        _InitWindow        ;initialize the window manager
        _InitMenu          ;initialize the menu manager
        CLR.L   -(SP)      ;zero on stack for restart
        _initdialog        ;initialize dialog manager
;
;----(3)-----------------------------------------------------------
;
;open resource file
;
        CLR.W   -(SP)
        PEA     'A+'       ;resource file name on stack
        _OpenResFile       ;open the resource file pointed to
        MOVE.W  (SP)+,D0           ;take result off stack, put in D0
;
;----(4)-----------------------------------------------------------
;
;set up Apple menu
;
        CLR.L   -(SP)      ;make space for a handle to be returned
        MOVE.W  #1,-(SP)   ;point to first menu
        _GetRMenu          ;get first menu
        CLR.W   -(SP)      ;stack indicates insert after all others
        _InsertMenu        ;put the menu on the menu list
;
;----(5)-----------------------------------------------------------
;
;put desk accessories into the Apple menu
;
        CLR.L   -(SP)      ;make space for a handle to be returned
        MOVE.W  #1,-(SP)   ;point to first menu
        _GetRMenu          ;get first menu handle
        MOVE.L  Access,-(SP)       ;point to accessory type to add to list
        _AddResMenu        ;add accessory type to menu list
;
;----(6)-----------------------------------------------------------
;
;draw menu bar
;
        _DrawMenu          ;draw the menu bar
;
;----(7)-----------------------------------------------------------
;
;initialize event handler, cursor
;
        move.l  $0000FFFF,D0       ;get a mask for events into D0
        _flushevents               ;get rid of any events leftover
        _initcursor                ;show the arrow cursor
;
;
;----(8)-----------------------------------------------------------
;init dialog
;
        clr.l   -(sp)
        move.w  #256,-(sp)
        _getnewdialog
;
;----(9)-----------------------------------------------------------
;
;NEXT MONTH: We add the event loop and check to see if the button was
;pressed in dialog box.
;

;
;data storage area
;
Access                     ;type of accessory file to add
        .ascii  'DRVR'     ;driver file type
```

Figure 2: The assembly-language source code for the first part of the dialog-box program. See A+ next month for the second part.

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_OpenResFile routine returns a value onto the stack, which we must take off before proceeding (the MOVE.W instruction does this for us). Normally, we'd examine the returned code and check for a valid result, but we'll keep our routine simple for now and ignore the returned code.

Notice that we didn't open our resource file until after we'd initialized the managers. The reason for this sequence is simple: You can't use any resources until the Finder knows where to get them.

Section 4 shows how to set up a simple menu. In this case, we're using menu 1, which is the default Apple menu. If our resource file contained specified menus, we could substitute the appropriate menu number in the second instruction. Menu creation is an area where novices often get confused when working with the Finder.

Certain resources have predefined default values. Some examples of default values in the Finder are the Apple menu (#1) and the Edit menu (#2). Since Apple reserves specific numbers for its own menus, the company suggests that developers begin their resource numbering at 256. That way Apple's defaults can change without affecting the developer's resources. For example, if Apple added a menu #3 default definition and we had assigned #3 as a menu definition in our resource file, we would have a conflict, and guess who'd win. (Hint: not us.)

Another thing to note in section 4 is that we cleared space on the stack (CLR.L -(SP)) to make room for a handle (see "Behind the Finder," *A+* November 1984, page 137) to be returned. This requirement is another hidden pitfall in assembly-language program development on the Macintosh. Remember, the Mac's ROM routines were designed for use with Pascal, so we must emulate what Pascal does in order to safely use the ROM routines. I highly recommend that all Mac programmers get a copy of the Lisa Pascal manuals, as they explain a lot of the quirks you'll find in the calling conventions for ROM routines.

Before we leave section 4 of our code, note also that you must first get a menu and then insert it into the Finder's menu list. Getting a menu does not make it ready for use, which is where careful reading of *Inside Macintosh* comes in. Make sure that you understand the relationships between the various routines described in each of the managers; Apple does not do a good job of describing order-dependent events.

Section 5 shows how to add the desktop accessories to the Apple menu. Here we assume that all accessories will have a DRVR file type, as do all those that Apple supplies.

Once our menu (or menus, if you define more than one) is done, you can draw the menu bar (see section 6). You may begin to get a feel for why the Macintosh takes so long before you get a new menu bar on the display after you double-click on a program name. Our simple program has only a few things to do before drawing a menu bar, but more complex programs often have large sections of code that must be executed before the program can draw that menu bar on the screen.

Section 7 initializes the event handler and shows the cursor on the display. We'll talk more about these steps next month, when we present the event handler itself.

Finally, we begin to get our dialog box. Since we numbered it 256, we must put that number on the stack before calling the GetNewDialog routine. Next month we'll display the dialog and create the routines to handle the mouse inputs. By the time we get that done, you'll have the operating core of a simple Mac program. You'll find that you can add to this core without having to change it significantly, a definite plus in Mac program development.

By the way, if you add an .End statement to the program code we've gone through so far, the program should assemble. Follow the process outlined in Figure 1 and create a usable(!?) Mac program that you can run through the debugger. You'll find that the Mac does a lot of work in those ROM routines! Of course, our program ends abruptly at this point, so you'll get the bomb message when you get to the end—but we'll fix that next time. ✚

Thom Hogan is editor-in-chief of Business Software *and has written numerous computer books, including* InfoWorld's Essential Guide to the Apple II.

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COMMUNICATIONS/*BY GREG MAINIS*

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During the past several years, telecommunications has become an increasingly important aspect of computing. For hobbyists, communicating with other systems brings a new frontier of information and exploration, and this ability is essential for professionals. Until recently, Macintosh owners were unable to use their computer for this function, because of the lack of data-communications equipment for their Mac.

Now Macintosh users can also participate in the world of telecommunications. Microcom, Apple Computer, and Novation have released modems and terminal software that work with the Macintosh. Both Microcom and Novation manufacture a complete communications system that includes a 1200-bit-per-second (bps) modem and software. The Apple Modem, however, does not come with terminal software—you must purchase the MacTerminal software package separately.

MACMODEM

The Macmodem from Microcom is a 1200-bps modem that can transmit data at a rate of 110, 300, or 1200 bits per second and can be upgraded to 2400 bps. The unit is finished in the traditional Apple beige with olive trim (which matches the Macintosh's keys), and sports seven LED indicators on the front. These reception and data-transmission indicators, which the Apple and Novation modems lack, let you monitor operations. All three modems have a speaker that provides audio feedback so you can detect errors, busy signals, and the like, during the critical call-connection phase.

The Macmodem system comes complete with modem, software, and all necessary cabling. The package also includes one free hour on the Dow Jones News/Retrieval service.

Working with the Macmodem is a pleasure. The software is functional and well designed. A novice can pick up the manual and master the intricacies of this system in no time at all.

To begin communicating, you select the Macmodem icon or a previously defined icon to communicate with a specific source (see figure 1). After opening the Macmodem icon, you enter the communication window. In the usual Macintosh display window is a status line at the bottom of the screen. You can always tell ex-

Modems and software from Microcom, Apple, and Novation

Three Communications Systems *for the Mac*

actly what the Macmodem is doing. When you are connected to a remote computer, the system verifies if the call is connected; the clock keeps track of the elapsed time. Four indicators inform you of various conditions during file transfer. In addition, Microcom's software supports user-defined functions, and you can monitor them in their own status area.

To access a remote computer, simply select Dial Telephone from the Phone menu and enter the number. You can dial the number once or have the Macmodem redial it until a connection is made—

a nice feature when you are dialing a busy bulletin board.

Once you get a connection, the information that scrolls off the screen is saved in a buffer; you can view it at any time by using either the scroll boxes or arrow keys. Unfortunately, the program does not take advantage of the added memory of the 512K Macintosh. Therefore, information that exceeds the limits of the buffer is lost. You can elect to save all incoming data by activating Begin Receiving File on the Transfer menu, or you can send output to the printer whenever you want. You can access saved files with MacWrite for later use. As with all Macintosh software, the Cut and Paste features and the clipboard are available.

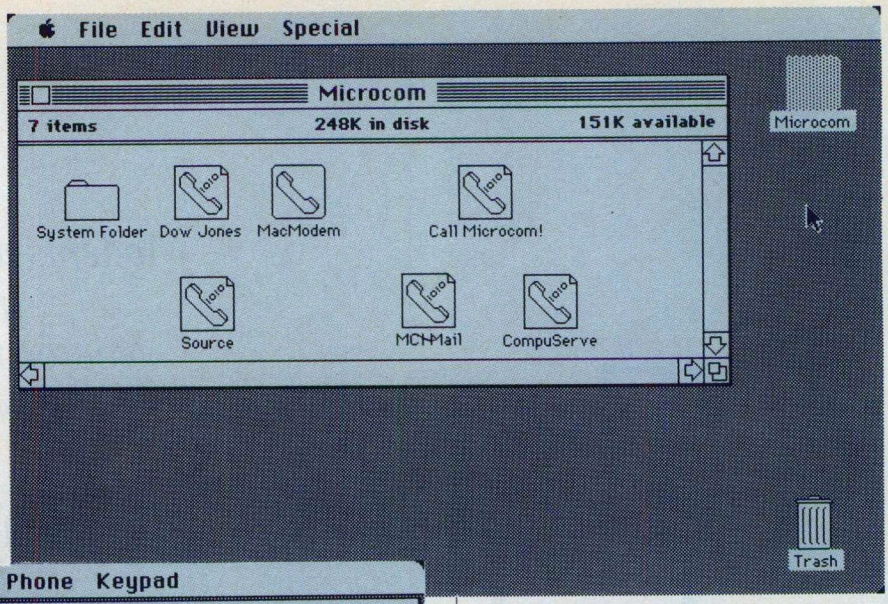
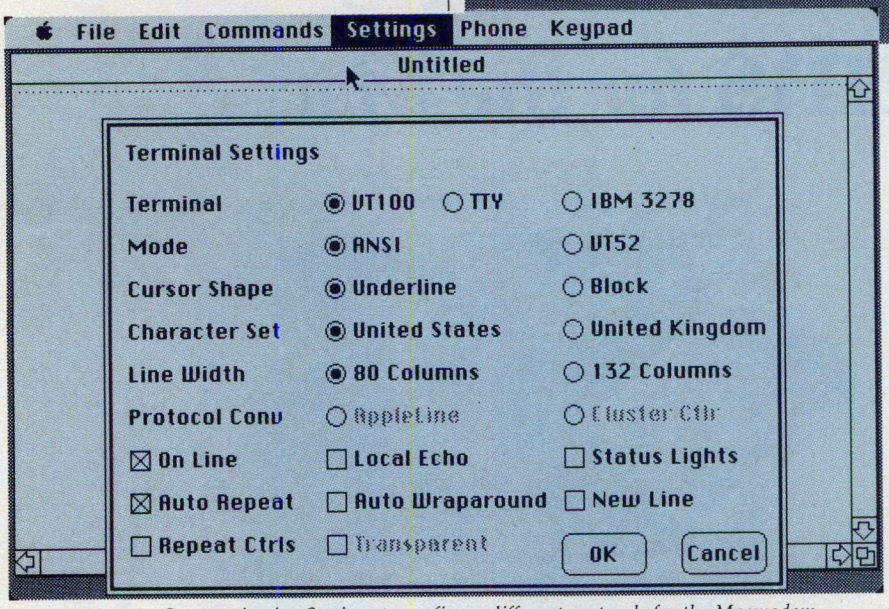


Figure 1: Microcom's Macmodem contains the necessary icons for communicating with other remote computers.



• *Figure 2: You use Communication Settings to configure different protocols for the Macmodem.*

Terminal Configurations

A protocol is a method that computers use to exchange information in a predefined structure. They can let incompatible computers exchange information or help reduce errors in the transmission process. You can change the Macmodem default protocol by selecting Communication Settings from the Setup menu (see figure 2). This software package has a unique protocol feature that, Microcom claims, guarantees 100%-error-free communication. When you set the Transmission mode on Reliable, the modem attempts to use a special error-checking protocol that Microcom calls MNP, for Microcom Networking Protocol. The only disadvantage is that no large source computer uses the MNP. The company claims that Telenet and Uninet use this protocol (which would enable you to use MNP to communicate with The Source, for example). The Telenet service in my area does not use the protocol, however.

In addition to sending information to and receiving it from a large host computer, the Macmodem can communicate with other Macintoshes or other personal computers. You can transfer information as a text file (straight ASCII), as a formatted document (ASCII with control characters inserted by the application program), or as binary files (zeros and ones). You can also send all three kinds of information with MNP, for increased transmission reliability. If you run into trouble along the way, Microcom has a toll-free customer-support hot line to answer any questions.

Other Features

Other features include a one-year warranty, rotary or pulse dialing, auto-answer, screen clearing, flow control (XON/XOFF, line at a time, or none) and a user-defined mode that allows you to perform series of commands. The user function is particularly handy. You can program a series of functions to automatically answer a call and wait for a password before sending information.

No system is perfect, and Macmodem is no exception. Although the documentation is excellent, I could not find any information in the manual regarding the LED indicators on the front of the modem. Each LED is coded with an abbreviation (for example, DTR means data terminal ready), but the manual neglects to cover the topic.

I could not operate the Macmodem with other popular communications programs, but a company spokesperson said a modification to rectify this situation was available for $15. Software compatibility may be a problem if you are planning to buy other software packages to work with this product, however.

Probably the most annoying thing about the Macmodem is that it has no on/off switch. The technical-support people at Microcom told me that none of their modems had on/off switches and that I could leave the unit plugged in at all times.

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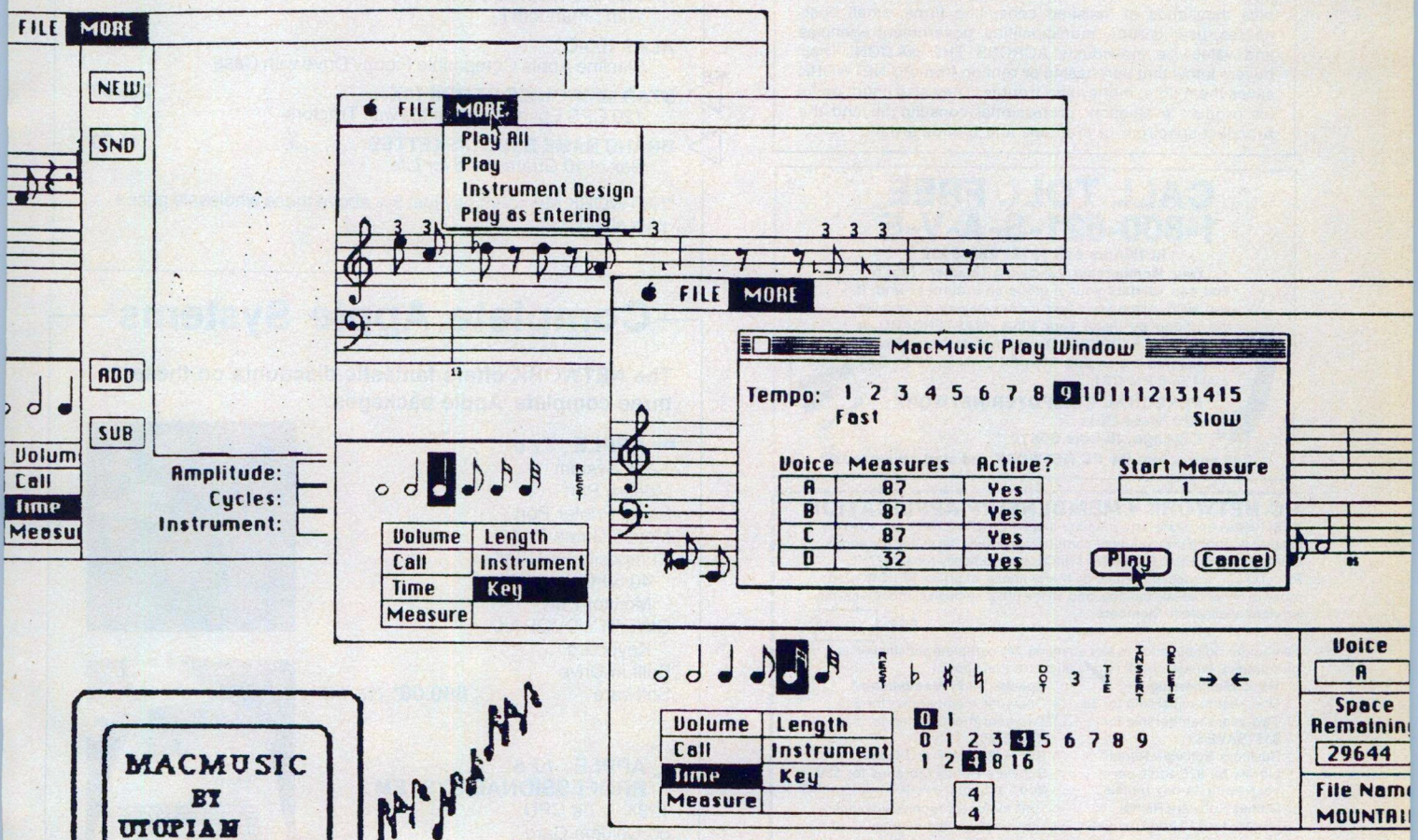

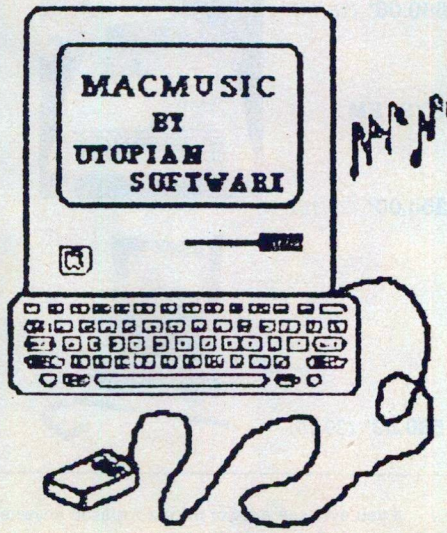

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▶ **Microsoft** *Multiplan (DOS or CPIM)*	105.00*
Microsoft *MS. Financial Statement*	57.00*
Microsoft *A.L.D.S.*	70.00*
Microsoft *Word for Macintosh*	110.00*
Microsoft *File for Macintosh*	$ 110.00*
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HARDWARE

(Please add shipping and handling charges found in italics next to price.)

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Alps *AP-100B Same as 100A with One Drive*	159.00*	*(4.00)*
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Apple *Macintosh Add On Drive*	351.00*	*(7.58)*
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Rana *Elite I 163K Drive*	225.00*	*(5.00)*
Rana *Elite II 326K Drive*	320.00*	*(7.00)*
Rana *Elite III 652K Drive*	398.00	*(10.00)*
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▶ **Panasonic** *Half Height DSDD Drive —No Case*	115.00*	*(2.48)*
Shugart *AP-50 Full Height Add-On*	155.00*	*(4.00)*
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Quadram *MP-8K Microfazer Buffer (expandable)*	110.00*	*(2.50)*
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Mac-Too! Indicates the Mac version is available at the same price.

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APPLE MODEM/MACTERMINAL

The Apple Modem from Apple Computer, Inc. is available in either a 300- or a 1200-bps version. Both models are physically identical and simple to install, and they come with all the necessary equipment to connect your modem to the computer and telephone. To install the unit, just plug in the appropriate cables and switch it on. The 1200-bps version is capable of transferring information from at 0–300 bps in the low-speed mode and 1200 bps in the high-speed mode. You can control the modem with keyboard commands.

MacTerminal is a versatile, easy-to-use communications program that drives the Apple Modem. With it, you can access an information utility or bulletin board or emulate popular computers or terminals. The program includes discounts on The Source, Dow Jones News/Retrieval Service, CompuServe, EasyLink, and MCI Mail.

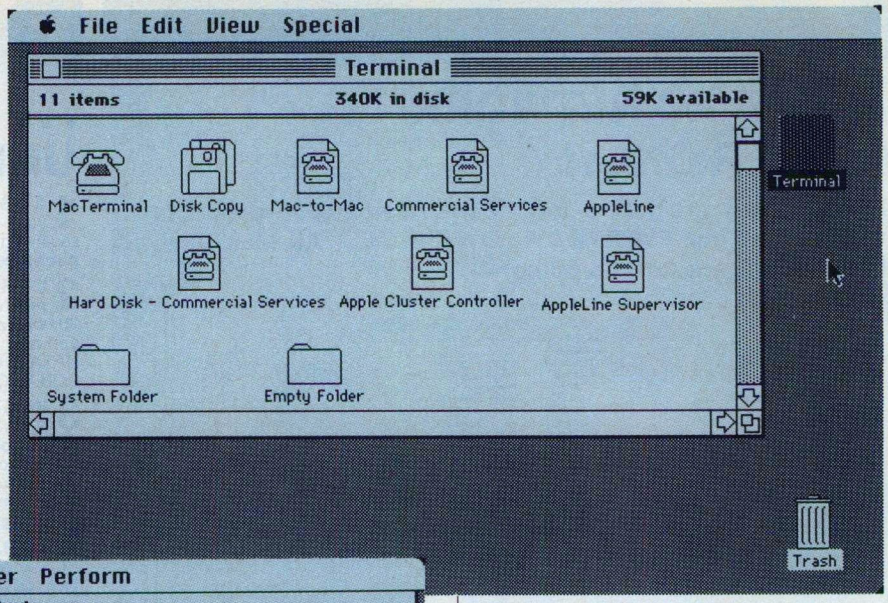

Figure 3: MacTerminal allows you to choose various communications methods.

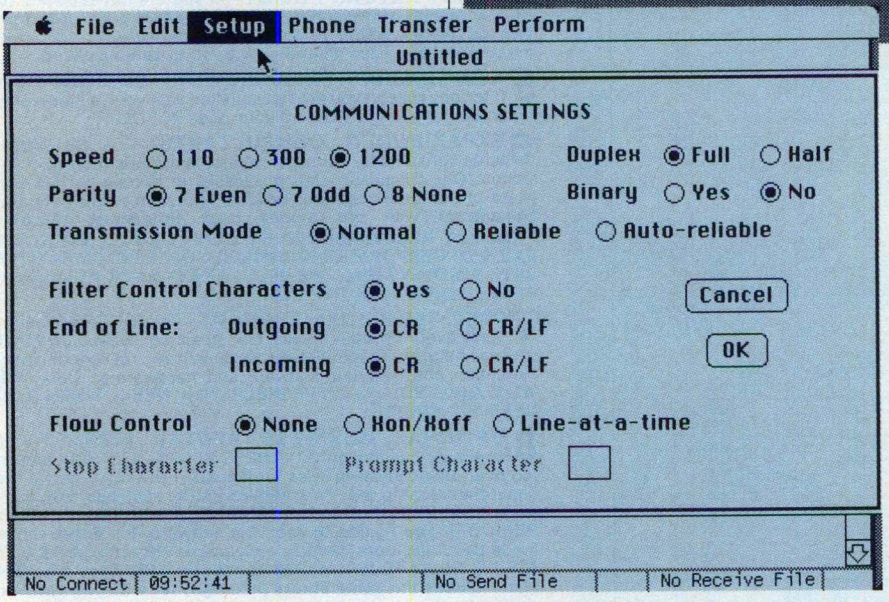

Figure 4: The Terminal Settings dialog box lets you select various emulation modes.

Dialing

To start using MacTerminal, open its icon or use a previously saved file (see figure 3). The main menu contains simple, straightforward commands for quick, easy access. The default settings let you communicate with most remote computers without any modifications to the telecommunications settings.

To begin a call, select Phone Settings from the Phone menu. After you have entered the phone number and selected the telephone type (tone, pulse, or mixed), you are ready to dial. MacTerminal makes you go back into the Phone menu again and select Dial to begin the call. It becomes awkward to enter the number in one submenu and actually dial in another. If the line is busy, Apple Modem requires manual disconnection; it has no provision for automatic redialing. In addition, you'll notice a considerable time delay when you cancel a call.

Instead of using a visual status indicator (LED or status line) to inform you of the current carrier status, MacTerminal displays a dialog box indicating that a connection has been established. MacTerminal lets you use the scroll bar to scan more than one screen full of information. As the screen scrolls, you can let the information roll off the top of the screen without saving it, or save the information to disk. I found that recording the lines off the top was useful, since using that method, I could review my entire communications session.

After the call, you can save the data to the disk and later use MacWrite to access it. Once you no longer need the information you have sent, you can reset the screen. Doing so erases all previous data and returns the communications settings to their default configurations. MacTerminal does not allow you simply to erase previous data. Therefore, to clear the screen, you must reset and reconfigure the system before dialing another number.

Printing

MacTerminal gives you the option of printing data from the screen to the printer. You use Select All from the Edit menu and then print or highlight selected portions. The program has no provision for sending incoming data directly to a printer.

A major strength of MacTerminal is its ability to emulate a TTY (Teletype) terminal and two popular minicomputers, the Digital Equipment Corporation VT-100 and the IBM 3278. The Terminal Settings dialog box displays the various emulation settings available with this program (see figure 4). The VT-100 setting allows you to use either the ANSI or the VT-52 mode to control the screen output. The IBM 3278 setting works with AppleLine to communicate with IBM mainframes or

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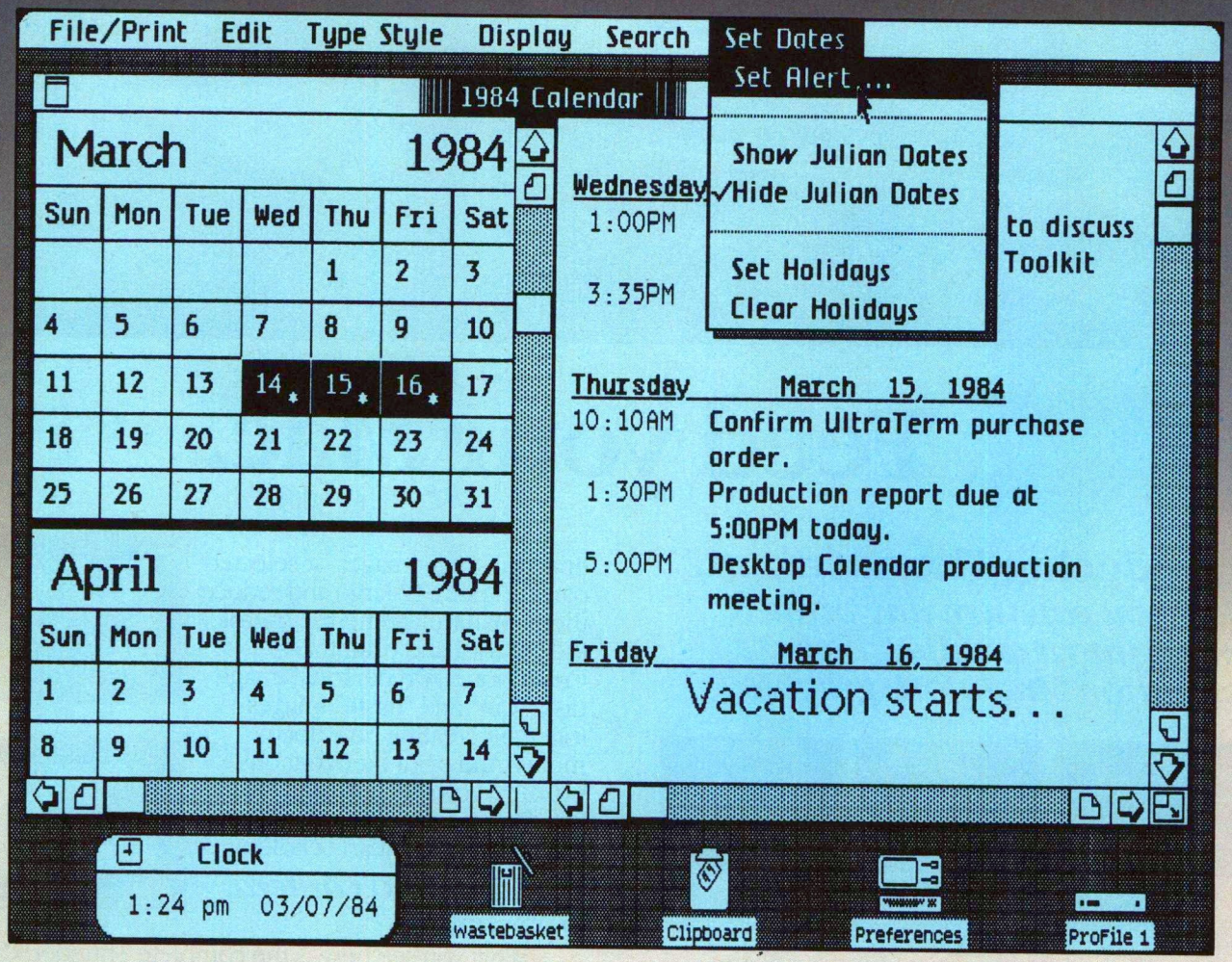
INTRODUCING



Desktop Calendar for your Lisa 2

Desktop Calendar, a new tool for the Lisa 2, will improve the way you work because it helps you manage your time.

Your're an important person. Working hard to get the job done. But what happens if you get so involved in your work that you lose track of time? Missing an important appointment or meeting can mean disaster.

If you put the times and dates of all your important appointments and meetings into Desktop Calendar, it will automatically remind you of them in time for you to meet your commitments. Once you place Desktop Calendar on your electronic desktop, you can use your computer to write a letter, recalculate a schedule, prepare a financial statement, or use any of the Lisa Office System Tools. At the proper time Desktop Calendar will interrupt, reminding you of your appointment.

Talking on the phone to an important client? Want to know all the dealings you've had with them for the last three months? Desktop Calendar will search through its electronic notebook and tell you. Want to know the address of an important business contact named 'JONES'? Desktop Calendar will tell you that too.

Desktop Calendar is more than just a calendar for your computer. It will also keep track of appointments, hold addresses for easy reference and remind you of important events, even when you are busy working with another tool in the Lisa Office System.

Desktop Calendar will be available third quarter 1984 from Videx.

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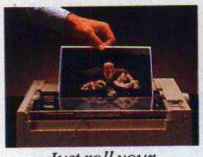
Feed your Mac.

Introducing ThunderScan.™

Now you can turn any printed image into a detailed, high-resolution Macintosh graphic.



Just roll your original into your Imagewriter.

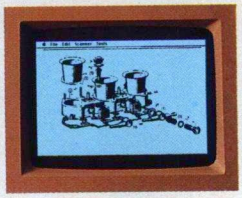
ThunderScan scans and digitizes the image.

Presto! A high-resolution MacPaint document.

No doubt about it, Macintosh is one great graphics machine. But until now, Mac graphics have been limited to what you can draw with a mouse and what someone else has put on a disk. Consequently, taking full advantage of Mac's graphics capabilities has been tough. But now there's ThunderScan. The new optical scanning device that lets you feed your Mac a steady diet of graphics that are useful to you.

ThunderScan turns Mac's Imagewriter printer into an image reader. So you can digitize any printed image and turn it into a detailed, high-resolution MacPaint document. Anything, including forms, half-tones, photos, mechanical drawings, maps, floorplans, logos, signatures and more. From black and white and color originals. ThunderScan reproduces them at over 200 dots per inch and in 32 shades of gray.

ThunderScan's application software, written by Mac-team-member, Andy Hertzfeld, makes it an extremely versatile and useful tool. You can generate full-page images or selected parts of them. Enlarge and reduce them. Manipulate them. Control the contrast and brightness. Create your own personal image disk. "Cut" and "paste" images together, creating new documents. And print them out on your Imagewriter. Or send them by modem to another Mac. The possibilities are nearly endless.



No lights, no camera, just action.

What you see here is the complete ThunderScan system. You don't have to buy an expensive video camera. Just pop out your Imagewriter's ribbon cartridge, snap in ThunderScan and you're set. It can even work in the dark (maybe you can think of an application for that).

If you bought a Mac at least partly for its graphics, only to find you couldn't take full advantage of them, now you can. With ThunderScan.

At an introductory price of just $229, it's a small price to pay for a whole new graphics capability.

For more information or a ThunderScan of your own, see your dealer or call us today.

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ThunderScan

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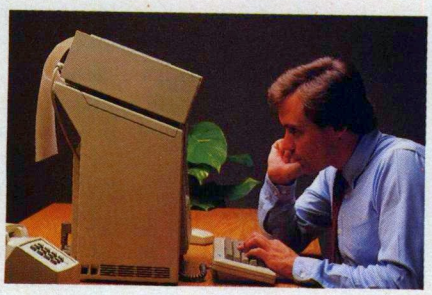

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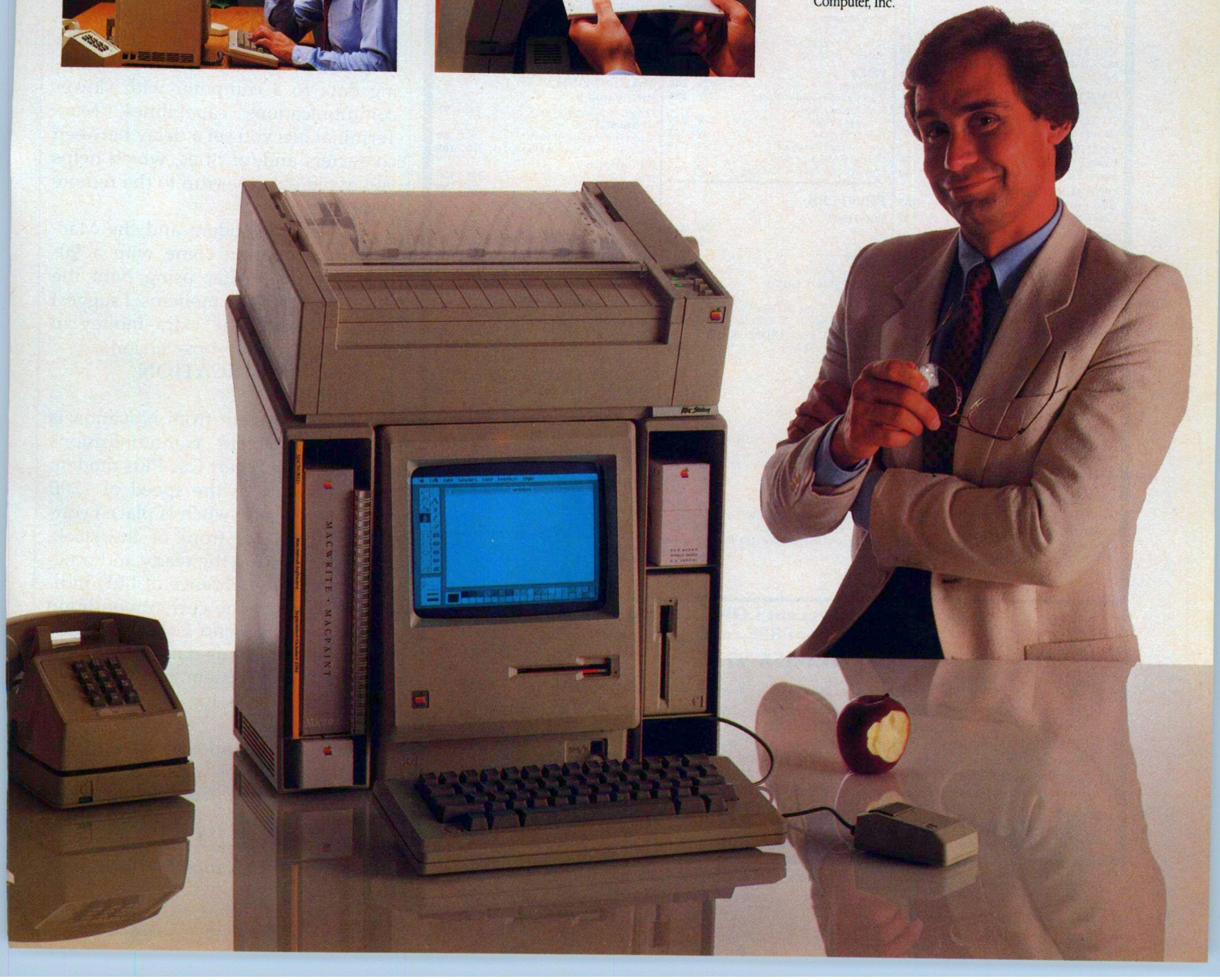

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Paddlestick for II+	49	35
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CALIFORNIA COMPUTER SYSTEMS		
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Buffered Grappler + (16K buffer)	239	165

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eRam 80 - 80 Col., 64K for Apple //e	135	119
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Mockingboard B (Speech Chip)	124	92
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MT-160L, Tractor, 80 Columns	798	589
MT-180L, Tractor, 132 Columns	1,098	739
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EXP-400 Letter Quality 13 CPS	399	289
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Gemini 15X	549	399
Radix 10 Near Letter Quality	849	539
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JB 1201MA 12" Hi/Res Green	179	149
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12" Hi Res Amber	180	139
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J-CAT	149	99
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Smart Cat-Plus and MacTerminal would make a very good combination.

with the Apple Cluster Controller.

The Keypad menu is a mouse-driven keypad that emulates certain keys on the VT-100 or the IBM 3278. The keypad layout is determined by your choice of a terminal for emulation from the Terminal Settings menu. This feature gives you added editing capabilities.

File Transfer

To further configure your system for sending and receiving data, you can use MacTerminal's file-transfer settings. The program has two data-transfer methods, XModem and Text. XModem is another error-checking protocol. This function allows you to send and receive data (e.g., MacPaint documents, Mac fonts, and the like) without error. The Text transfer method is for sending and receiving data as ASCII characters. If you are sending data to a computer with slower communications capabilities, MacTerminal lets you set a delay between characters and/or lines, which helps you avoid data overrun to the remote computer.

The Apple Modem and the MacTerminal program come with a 90-day warranty. After using both the 300- and 1200-bps modems, I suggest that it's worth the extra money to purchase the 1200-bps version.

CAT COMMUNICATION SYSTEM

The Cat system from Novation is another complete communications package. The Smart Cat-Plus modem transmits data at the speed of 1200 bps. The on/off switch is placed conveniently in the front of the sleek, gray case, next to the ready and power lights. In the absence of LED indicators to show the current condition of the system, Smart Cat has a ready light that flashes as data is being exchanged. The system provides keyboard commands for controlling the modem.

The system comes with all necessary equipment, as well as a free subscription to the *Official Airline Guide* and an introductory demonstration of CompuServe.

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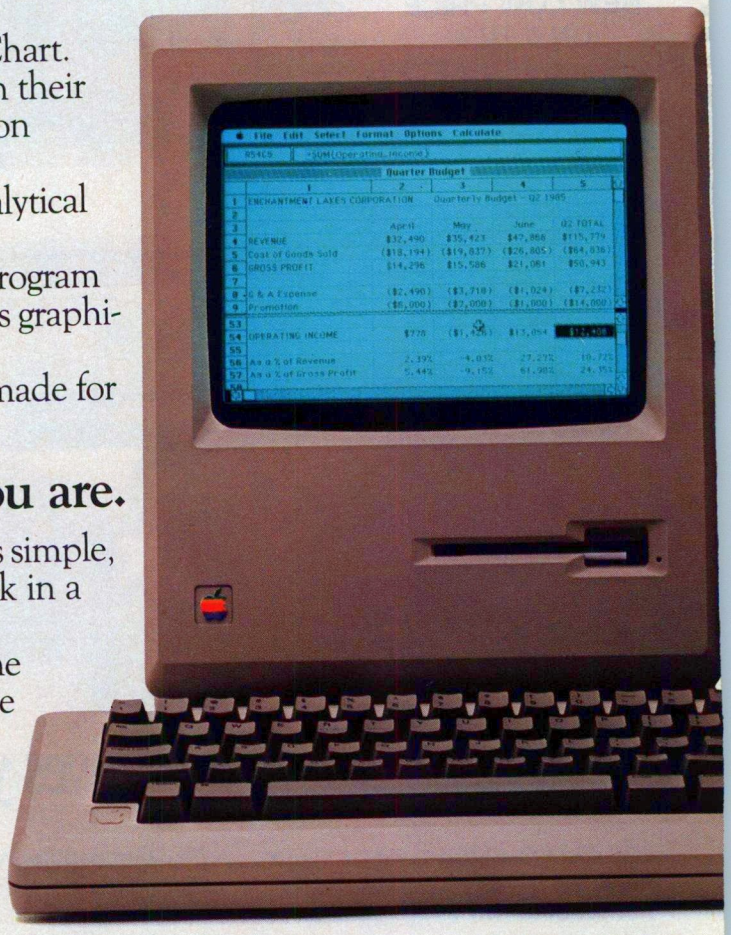

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These characters can teach anybody to type.

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accompanies the system is called Mite and was developed for Novation by Mycroft Labs, Inc. After opening the Mite icon or a previously saved file, you will find that this software breaks the Macintosh tradition. Instead of using the mouse and pull-down menus, Mite uses conventional menus and keyboard controls common on other personal computers (see figure 5).

Evidently the system was developed for a standard computer and was transferred to the Macintosh without modification. This approach becomes apparent when you start reading the manual. As you thumb through it, you see pictures and explanations that describe how to operate the system with an IBM Personal Computer. Even though Mite doesn't use Macintosh technology, it is still a powerful data-communications tool.

A status line at the top of the screen describes the current condition of the system, and help screens appear throughout the program.

Dialing

To start a communications session, enter the phone number on the Parameter submenu (see figure 6). Since Mite is not mouse-driven, you must enter P (Parameter menu) and N (phone number) from the keyboard.

This submenu provides several options. You can select the number of times the Cat modem will redial a number, and you can set the modem to automatically answer incoming calls and request a password.

You go back to the main menu to activate the modem. When the connection is completed, you can use various options in different submenus and return to the main menu to finish the call, all without disconnecting the remote computer.

Data Transfer

Mite offers myriad ways to send and receive data. The Binary File Transfer submenu gives you a choice of several different proprietary protocols. In addition, you can choose a more typical protocol, such as Xmodem, Text, or Macintosh to Macintosh (see figure 7).

Here is where the manual comes up short. The documentation briefly explains most of the available op-

```
MITE v2.83  -  Copyright (c) 1984, Mycroft Labs, Inc.
OFFLINE. Bytes Captured =     0/ 4095. Capture = OFF.
Site ID =

MAIN MENU

        G - Go start communications
        H - Hang Up Phone
        I - Enter Site ID
        L - Load Parameters from Disk File
        S - Save Parameters on Disk File

            Sub-Menus:

        P - Parameter              O - Option
        U - Text File Upload       D - Text File Download
        B - Binary File Xfer       M - Macro definitions
        C - Command Processor      F - Character Filter

        X - Return to Operating System

Enter Option (? for help):
```

Figure 5: Mite's main menu illustrates all the options available with this package.

```
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Site ID =

PARAMETER MENU

        B - Baud Rate              = 1200
        D - Data Bits              = 7
        P - Parity                 = EVEN
        S - Stop Bits              = 1

        R - Role (ANS/ORG)         = ORG
        E - Entry Password         =
        M - Mode (Duplex)          = FULL

        A - Auto Redial Count      = 0
        N - Phone Number           =
        I - Modem Init String      =
        H - Dial Prefix            = ATD

        X - Exit to main menu

Enter Option (? for help):
```

Figure 6: You select the communication requirements of the remote computer from Mite's Parameter menu.

```
MITE v2.83  -  Copyright (c) 1984, Mycroft Labs, Inc.
OFFLINE. Bytes Captured =     0/ 4095. Capture = OFF.
Site ID =

BINARY FILE TRANSFER MENU

        P - Protocol                    = XMODEM
        C - CRC Option (XMODEM)         = OFF

        S - Send File and Return to Link
        R - Receive File and Return to Link

        T - Text Format Translation = OFF
        M - Macintosh to Macintosh  = OFF

        X - Exit to Main Menu

Enter Option (? for help):
```

Figure 7: Mite offers a wide variety of communication protocols.

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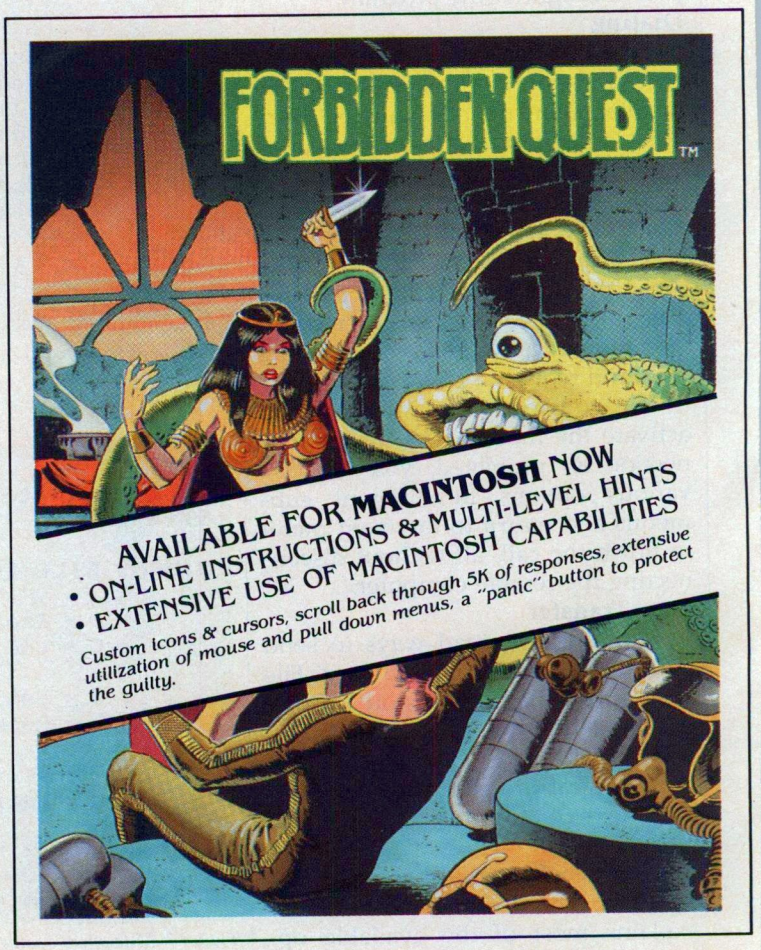

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tions, but I could not find any material on the Macintosh-to-Macintosh transfer. The on-screen Help menu gives a brief description of Mac-to-Mac transfer, however.

Mite can also send files to or receive them from a large source computer, using its Text File Upload and Text File Download options. As a file is being received, the status line on the main menu records the amount of data that has been captured. The system has 62K of space available to store incoming data—this version of the software does not take advantage of the 512K Mac.

After file capture, you must leave the main menu and return to the Mite desktop icon to print the file. During the short time I had to test this product, I could not get MacWrite to accept a file that had been retrieved by Text File Download. In all fairness, however, I should say that I was unable to contact Novation to inquire about this matter.

ther features include a choice of rotary or pulse dialing and a user-defined mode. Micro String Definition is one such mode, and it allows you to perform a series of commands—an automatic log-on procedure, for example.

The Smart Cat-Plus comes with a one-year warranty and is fully compatible with MacTerminal. I have dealt with Novation in the past and have found that it stands behind its products to the fullest extent.

RECOMMENDATIONS

Microcom's Macmodem is a well-designed product. I have no doubt that the Macmodem would be a fine addition to my Macintosh. The documentation is comprehensive and well written. The overall strengths of this package rest with its ease of use, status-line indicators, auto-redial/answer features, and the user-defined functions.

The only question I can raise about this product has to do with software-compatiblity problems—but you may not need other software with the Macmodem. Don't overlook this package when you are shopping for a complete communications system.

The Apple Modem and MacTerminal combination gives you the "plain vanilla" system—you won't ever have to worry about future compatibility problems. This system is easy to use and provides emulation capabilities that other packages lack. If you need to emulate the VT-100 or IBM 3278, then this is the system for you. I hope that future versions of MacTerminal will come with a redial feature, though.

The Cat Communication System from Novation could be an excellent combination—the package is sophisticated, and the hardware is versatile. If you are buying this package as a total system, however, I recommend that you wait until the manual and the Mite software have been revised specifically for the Macintosh.

If you are thinking of adding another terminal program to this system, the Smart Cat-Plus and MacTerminal would make a very good combination. Since the Apple Modem and Smart Cat-Plus are compatible with most popular communications programs, you won't have to worry about software compatibility with future products.

Considering Novation's reputation for excellent product support, I would seriously think about combining the Smart Cat-Plus modem with a communications program other than Mite for the time being. ✚

Greg Mainis is an Apple software developer and author of Introduction to ProDOS *(McGraw-Hill, 1985).*

PRODUCT INFORMATION

Macmodem
Microcom, Inc.
1400A Providence Highway
Norwood, MA 02062
(617) 762-9310
List Price: $599; 2400-bps upgrade, $400
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Apple Modem/MacTerminal
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: 300-bps modem, $225; 1200-bps modem, $495; MacTerminal, $99
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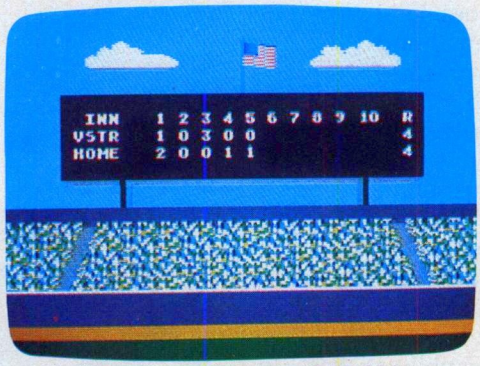

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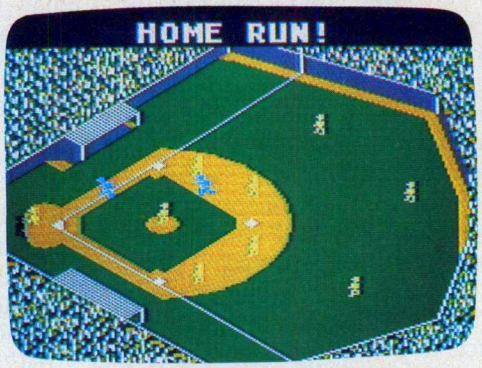
Mark Cotone
Hi-Res *Magazine*
May/June 1984



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MacTips

Suggestions from our readers

Quick Start

When you copy files or change disks, the Mac operating system often requires that you reinsert the start-up (system) disk. This frustrating experience is familiar to users of two-drive Macs, as well as to single-drive-Mac users. Some software won't run unless it is on the start-up disk. Apple suggests changing the start-up disk by double-clicking an application on the "new" disk and immediately exiting. This causes the new disk's scrapbook, notepad, and desk accessories to become active, but it is inconvenient and time-consuming.

There's a much easier way. Just run the Finder on the disk that you want to designate as the start-up disk. You say you've tried that, but you get the dialog box that tells you that an application cannot be found? Here's the trick: Apple included a little-publicized feature in the Finder that lets it try to run any file. It was originally supposed to let Lisa developers transfer a special program from the Lisa to the Mac. To run this program, you hold down the ⌘ and Option keys while double-clicking on the program icon, and you can run the Finder the same way. If you insert a "new" disk and want it to become the start-up disk, double-click on the Finder on the "new" disk, while holding down the ⌘ and Option keys.

Bill Steinberg

MacRuler

I have a tip for MacPaint users who need to have structured, measured drawings. If you are making a drawing freehand and need to have straight lines, you use a ruler. MacPaint lacks a ruler, however, and provides a "straight line" tool, instead. If you need to draw lines of specific lengths, you normally use the inch marks on a ruler, but MacPaint's straight line has no length calibrations. You could "select" the line in question and duplicate it elsewhere in the drawing, but this approach is awkward. There is a better way.

Choose the Grid option from the Goodies menu and use a pattern with dots spaced widely apart (see figure 1). The Grid option forces all lines drawn on the screen to begin and terminate at fixed locations, based on a grid superimposed over the drawing. Although the grid itself is invisible, if you choose the spaced-dot pattern from the available patterns, the dots will represent the grid points on the screen. With this method, you can easily draw lines of specific lengths, and you can use the dots like the inch marks on a conventional ruler for measuring lines.

Donald M. Shepherd

Alphabetical Golfers

My father, who is retired and coordinates golfing activities for senior citizens in northwestern Washington state, recently obtained a Macintosh.

He wanted the Macintosh to arrange the names of senior golfers in alphabetical order, but neither the Macintosh nor the MacWrite manual explains how to alphabetize.

After some trial and error, we settled on the following method:

1. View the desktop by icons.
2. Make a copy of an empty folder.
3. Rename the copy of the empty folder (for instance, Name List).

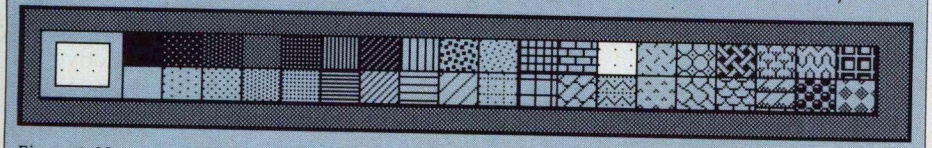
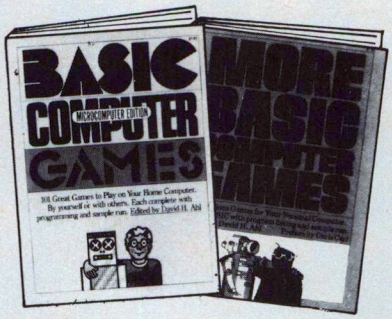


Figure 1: Use a spaced-dot pattern from the available patterns to draw a grid representing inch marks on a conventional ruler.

GAME BOOKS FROM CREATIVE COMPUTING



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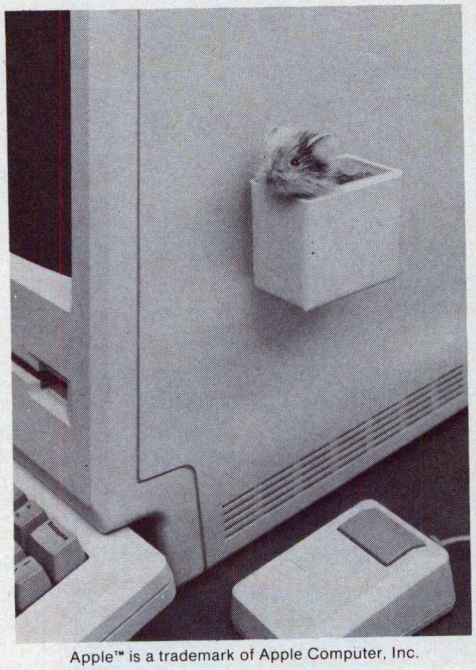

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CIRCLE 451 ON READER SERVICE CARD

MacTips

4. Give any icon the name of a senior golfer. Perhaps the quickest way is to make a copy of an empty folder and rename it with a golfer's name.
5. Drag each icon that is named after a senior golfer into the Name List folder.
6. Open the Name List folder.
7. View the contents of the Name List folder *by name*. The names of the senior golfers should be listed in alphabetical order.
8. To obtain a printout of the contents of the Name List folder in alphabetical order, reduce the size of the window so that it shows only the contents you want printed. Print as instructed on page 72 or 73 of the Macintosh manual.

If you want to add some new names, create more icons and drag them into the Name List folder.

If you want to delete some names, drag their icons into the trash.

Jack Stephens

Special MacTerminal Keys

I have discovered a few "undocumented features" on MacTerminal that people may not be aware of. Several commands let you move the cursor's position on the screen while you're on-line.

⌘H backspaces the cursor one space
⌘I moves the cursor to the right to the next tab marker
⌘J drops the cursor down one line
⌘K drops the cursor down two lines
⌘M moves the cursor back to the start of the line

Additionally, the ⌘ G causes the tone to sound. Pressing the Option key changes the cursor to a special shape with four arrows. Then, while you hold the Option key down, you can move that cursor to any position on the screen by using the mouse. A single click of the mouse brings the active position of the cursor to that spot for further typing.

I had some trouble using these commands and the Option-key cursor placement while I was actively on-line. After signing off, I was able to do some limited text editing using these commands, however.

Paul J. Papanek, Jr.

Creative Inspiration

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1ne

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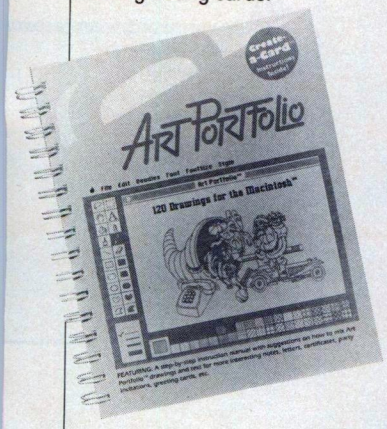

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Here's everything you and your MacPaint program need to get into the card-making business.

▶ Special drawings, ranging from the obvious to the obscure.

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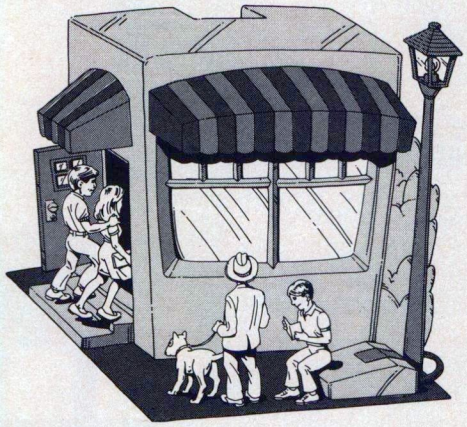


3hree

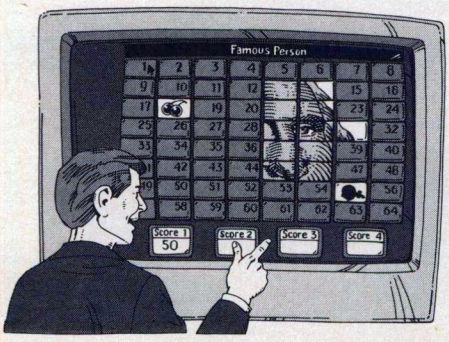
MacMatch™
$49.95

This is one of the first of a new breed: Native Macintosh games. Our software gamemakers have taken their inspiration from the tv game show, Concentration,™ and have built it on the Mac's quickness and graphics power. When you match two squares, you get clues about the hidden puzzle. It comes with puzzles, but the real beauty is that you can make up your own, as complex or simple as you like. You'll never get bored. And think what party puzzles might look like...

4our

MouseTracks™
$49.95

We put Mac's considerable graphics skills through the loops to develop an eye-popper for Mac's first mouse game. You will zoom an animated mouse through a maze-like environment avoiding a bad kitty cat intent on supper. There are plenty of perils and rewards for the skillful. MouseTracks shows everyone how much fun Macintosh can be.



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Typing Avalanche™
$59.95

Since man does not live on art alone, but by lots of words that flow from the mouth of Mac, we've commissioned the first typing strategy program for the Mac. It's aimed at the poor duck who somehow got through school without learning touch typing. (The rest of us, in other words.) It's fast paced. It's fun. And it works. Play it a while, and you'll suddenly realize you are a touch typist. Someday the schools will catch up.

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A+ pipeline

PENMAN, THE ROBOT PLOTTER

Although Penman is first and foremost a portable three-color plotter, you can also use it as a printer, a robot that you can command, a mouse, or a desktop turtle and plotter for the Logo language. The plotter features a built-in character set and connects via an RS-232 serial interface to your computer. The unit consists of two parts—a control box and a 5-inch-square robot that moves on the paper to produce graphics—linked by a ribbon cable. The robot has three built-in pen holders and built-in collision detection. You command Penman to move by programming appropriate instructions via the host computer, although some third-party application packages that support the plotter are also available. *(List Price: $399.95)*

Requires: Apple II, II Plus, or IIe; RS-232 serial interface

American Micro Products, Inc.
705 North Bowser
Richardson, TX 75081
(214) 238-1815

CIRCLE READER SERVICE NO. **900**

CADAPPLE

A complete introduction to computer-aided design for Apple II-series computers, Cadapple—Entry Level includes software, an introductory audio tape, a training manual, and an illustrated reference manual. Users input graphics using a joystick, KoalaPad, or AppleMouse II. The software automatically produces lines, arcs, circles, rectangles, ellipses, polygons, and text. The finished drawings can be plotted on the Apple Color Plotter. *(List Price: $495)*

Requires: Apple II, II Plus, IIe, or IIc; 64K RAM; Apple Color Plotter

T&W Systems, Inc.
7372 Prince Drive
Suite 106
Huntington Beach, CA 92647
(714) 847-9960

CIRCLE READER SERVICE NO. **901**

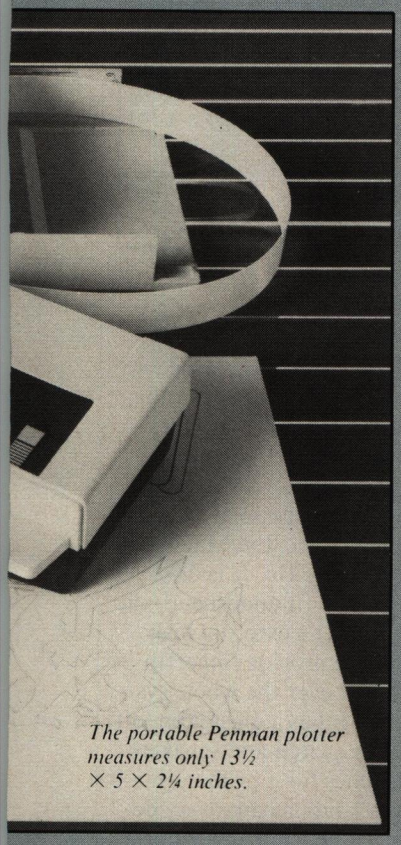
PERFECT SOFTWARE FOR APPLE IIe AND IIc

The new integrated Perfect Software family of products, which includes Perfect Writer with Perfect Speller and Perfect Thesaurus, Perfect Calc, Perfect Filer, and Perfect Link, is now available for use on the Apple IIe or IIc.

The programs feature such functions as pop-up menus, multiple-document editing, simple English-language commands, a common command set for each program, and compatibility with the AppleMouse.

A new graphics-design package, Perfect Draw, which can be fully integrated with Perfect Writer, is also available. With Perfect Draw, users can create and add a variety of illustrations and text to their documents. Features and commands of the program include Mirror; Get; Flip; X,Y Axis Location; Color Fill (42 colors available); -1 or Undo; Erase, Magnify; Cut and Paste; Palettes; 32 background colors; and the abili-

Monogram's Forecast can be used alone or with Dollars and Sense.



The portable Penman plotter measures only 13½ × 5 × 2¼ inches.

ty to edit character sets, reverse a character's color, and a black-and-white mode. *(List Price: Perfect Writer, Perfect Calc, or Perfect Filer, $139; Perfect Link, $109; Perfect Draw, price not determined at press time)*

Requires: Apple IIe or IIc, 64K RAM, one disk drive

THORN EMI Computer Software, Inc.
3187C Airway Avenue
Costa Mesa, CA 92626
(714) 549-8327

CIRCLE READER SERVICE NO. **902**

II SERIES MAC

▸ TWO STAND-ALONE VERSIONS OF FORECAST

Monogram has released two versions—one for Apple II and another for Macintosh computers—of its tax-planning program Forecast. The program can be used either on its own or in conjunction with the company's financial-management program Dollars and Sense.

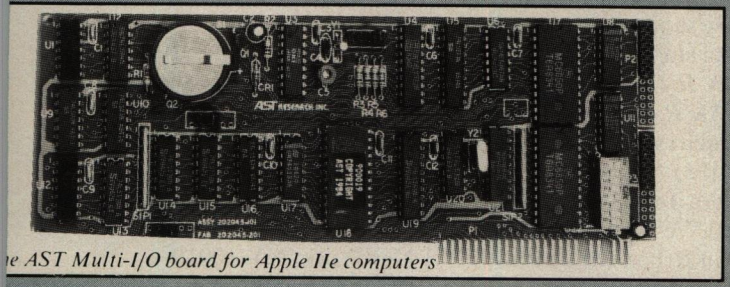
Forecast can combine a current year's tax data with tax scenarios for the next four years, thus enabling users to perform "what if" tax modeling with their personal-finance programs. The software incorporates the essential components of Form 1040, Schedules A, B, C, D, G, and W, and enables users to estimate federal taxes using either Schedules XYZ, Income Averaging, or the Alternative Minimum Tax.

The Macintosh version of Forecast uses multiple windows, pull-down menus, icons, and dialog and scroll boxes; the Apple II version comes with a 64K RAM version on side 1 and a 128K RAM version on side 2. *(List Price: Macintosh version, $69.95; Apple II version, $59.95)*

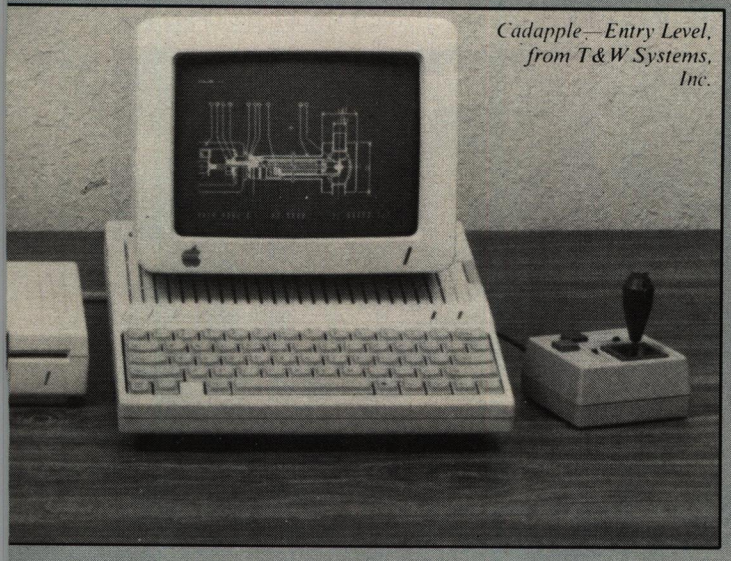
Requires: Apple II, II Plus, IIe, or IIc; 64K or 128K RAM; 80-column card; one or two disk drives; Macintosh, 128K or 512K RAM, one disk drive

Monogram
8295 S. La Cienega Blvd.
Inglewood, CA 90301
(213) 215-0529

CIRCLE READER SERVICE NO. **903**

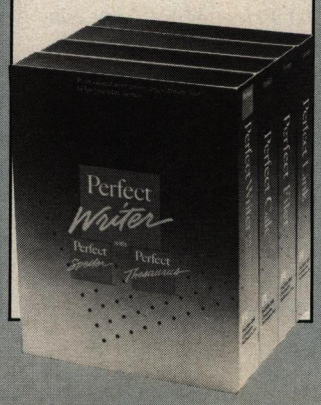


e AST Multi-I/O board for Apple IIe computers



Cadapple—Entry Level, from T&W Systems, Inc.

The integrated Perfect Software family of programs



II SERIES

▸ AST MULTI-I/O BOARD FOR APPLE IIe

AST Research's previously released Multi-I/O board for the Apple IIe now includes six utilities—an on-disk tutorial program and a clock read/set, text-file listing, graphics dump, phone dialer, modem or remote-terminal print, and screen time-display utilities—at no additional cost. The new board also supports the original three peripheral functions, offering a serial printer port, a communications serial port, and a ProDOS-compatible clock/calendar with battery backup. *(List Price: $235)*

Requires: Apple IIe

AST Research, Inc.
2121 Alton Avenue
Irvine, CA 92714
(714) 476-3868

CIRCLE READER SERVICE NO. **904**

II SERIES MAC LISA

▸ A+ MOUSE

Mouse Systems Corporation has introduced the A+ Mouse, a hand-held optical mouse that can work with all Apple mouse-driven software. The mouse comes either as a stand-alone device or bundled with personal productivity packages—Monogram's Dollars and Sense and Brøderbund Software's Bank Street Writer. *(List Price: A+ Mouse, $150; productivity package, $239.85)*

Requires: Apple II, II Plus, or IIe (with AppleMouse Card), IIc, Macintosh, or Lisa

Mouse Systems Corporation
2336H Walsh Avenue
Santa Clara, CA 95051
(408) 988-0211

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HARDWARE

II SERIES II SERIES MAC

MODEMPHONE 303

Modemphone 303 combines a telephone and a modem in one unit. The system features a speaker phone with a built-in amplifier for detecting busy signals, auto- or manual-answer, manual originate, and auto-disconnect. It also has 20 memories, each with an 18-digit capacity, for auto-dialing. The Modemphone operates at 0–300 bps and has an RS-232C serial interface. *(List Price: $120)*

Requires: Apple II, II Plus, IIe, or IIc, III, or Macintosh

Kwanasia Tele-Computers
225 West 34th Street
Suite 2114
New York, NY 10001
(212) 239-4840

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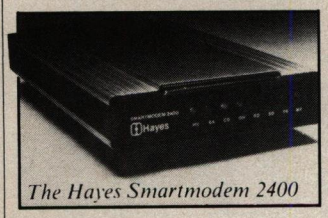

The Hayes Smartmodem 2400

II SERIES MAC

HAYES SMARTMODEM 2400

The Hayes direct-connect Smartmodem 2400 can operate both asynchronously and synchronously at transmission rates of 2400, 1200, and 600 bps and asynchronously at 0–300 bps, enabling it to link terminals, personal computers, mainframes, and information utilities. It has intelligent transmission controls, touch-tone and pulse dialing, full- and half-duplex communication, auto-answer and auto-dial and an RS-232C interface for synchronous communication.

Features that make it easy to use include call-progress monitoring and the abilities to switch between voice and data transmission. The modem meets both CCITT (international) and Bell 212A and 103 requirements for 2400- and 1200-bps communications. *(List Price: $899)*

Requires: Apple II, II Plus, IIe, IIc, or Macintosh; serial card that can operate at 2400 bps (except for IIc)

Hayes Microcomputer Products, Inc.
5923 Peachtree Industrial Blvd.
Norcross, GA 30092
(404) 449-8791

CIRCLE READER SERVICE NO. **946**

MAC

THE MACCOLBY KIT

Colby Computer has introduced the MacColby kit, a die-cast magnesium and aluminum case for the Macintosh that also has room for two floppy-disk drives, an internal modem, and a DC converter. Computer components, such as the keyboard, mouse, and monitor, install in the case in such a way that the system is fully portable and ready to use at all times. If you already own a Macintosh, Colby can install it in the case for you, or you can purchase a case complete with a Macintosh and one disk drive already installed. *(List Price: MacColby conversion kit, $499; 128K RAM MacColby computer, $2599; 512K RAM MacColby computer, $3599)*

Requires: Macintosh

Colby Computer
849 Independence Avenue
Mountain View, CA 94043
(415) 968-1410

CIRCLE READER SERVICE NO. **947**

II SERIES

TITAN RAM BOARDS

Titan RAM boards, which you can use to boost the memory of Apple II computers, are now available in 64K and 128K versions, as well as the 32K version. All Titan boards come with MoveDOS software, which automatically relocates DOS 3.2 or 3.3 into the board and thus frees up to 10K of user memory, and Ramexpand software, which lets you use the board for storing and loading subroutines, program segments, and arrays from Integer BASIC or Applesoft.

The two new boards also come with Pseudo-Disks for DOS 3.2 and 3.3, Pascal, and CP/M; these programs let you use the RAM board as a standard disk drive, but with increased speed, and they support up to 256K of data storage. *(List Price: 64K RAM board, $199; 128K RAM board, $269)*

Requires: Apple II, II Plus, or IIe

Titan Technologies, Inc.
310 West Ann Street
Ann Arbor, MI 48104
(313) 662-8542

CIRCLE READER SERVICE NO. **948**

Maccessories Control Center

II SERIES MAC

MACCESSORIES CONTROL CENTER

A new product in Kensington Microware's Maccessories product line, the Control Center, is a multifunction accessory for systems such as the Macintosh and Apple IIc. It is designed to fit underneath the computer's external disk drive to provide fingertip control over the whole system—it has a master on/off power switch and separate switches for a printer, modem, and one auxiliary device. The Control Center also protects your computer system from power surges, line noise, and static shocks. *(List Price: $99.95)*

Requires: Macintosh or Apple IIc

Kensington Microware Ltd.
251 Park Avenue South
New York, NY 10010
(212) 475-5200

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The MacColby Kit, from Colby Computer

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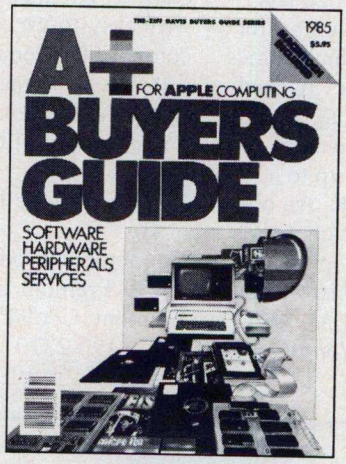

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FROM THE PUBLISHERS OF
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MAC

▸ PROMODEM 1200M MACPAC

The ProModem 1200M MacPac, designed for use with the Macintosh, is a Hayes-compatible, 300- and 1200-bps modem with a built-in clock/calendar. MacPac includes a connecting cable, ProCom-M terminal software, an instruction manual, and a telephone cord.

Standard features of the modem include auto-answer and auto-dial, programmable intelligent dialing, tone and pulse dialing, a built-in speaker with volume control, and separate phone and data jacks. The modem's design lets you add an optional buffer memory card, which comes with 2K of battery backed-up CMOS memory, and lets you expand its memory in 16K increments up to a maximum of 64K. An optional plug-in 12-character alphanumeric display is also available. *(List Price: ProModem 1200M, $549; buffer card or alphanumeric display, $99)*

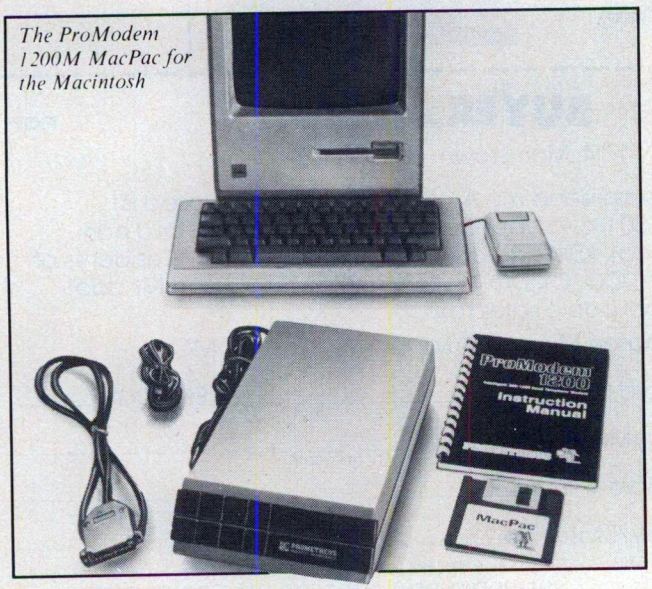
Requires: Macintosh
Prometheus Products, Inc.
45277 Fremont Blvd.
Fremont, CA 94538
(415) 490-2370
CIRCLE READER SERVICE NO. **950**

II SERIES

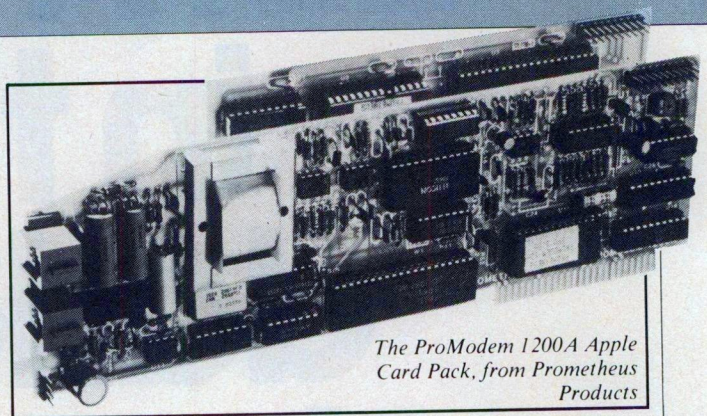
▸ PROMODEM 1200A APPLE CARD PACK

A 300/1200-bps intelligent modem, the ProModem 1200A Apple Card Pack plugs into the motherboard of an Apple II, II Plus, or IIe. The standard ProModem 1200A features auto-dial/auto-answer, tone and pulse dial, help commands, built-in diagnostics, two phone jacks, line-status detect, full- and half-duplex, and speaker with volume control. The modem comes with easy-to-use, Hayes-compatible, menu-driven software in an on-board ROM, a telephone cord, and documentation. *(List Price: $449)*

Requires: Apple II, II Plus, or IIe
Prometheus Products, Inc.
45277 Fremont Blvd.
Fremont, CA 94538
(415) 490-2370
CIRCLE READER SERVICE NO. **951**



The ProModem 1200M MacPac for the Macintosh



The ProModem 1200A Apple Card Pack, from Prometheus Products

II SERIES

▸ TITAN NEPTUNE 80-COLUMN CARD

Titan's Neptune extended 80-column card plugs into the auxiliary slot of the Apple IIe to give you increased video display. It is available in three versions that provide 64K, 128K, or 192K of extra memory. Each board comes with Pseudo-Disk software for DOS 3.2 or 3.3, Pascal, and CP/M, which lets you use the card as a standard disk drive, but with increased speed. The package also contains VC-Expand/80 software to expand VisiCalc to up to 220K of memory and a DOS relocation program, MoveDOS, which frees 10K of user memory. *(List Price: 64K board, $249; 128K board, $399; 192K board, $499)*

Requires: Apple IIe
Titan Technologies, Inc.
310 West Ann Street
Ann Arbor, MI 48104
(313) 662-8542
CIRCLE READER SERVICE NO. **952**

II SERIES

▸ VAI II LASERDISC INTERFACE

An inexpensive, software-based laserdisc interface that connects to the game-paddle port of an Apple II or IIe is available from Video Vision. The VAI II can operate with several Pioneer laserdisc models, the Magnavox VC-8010, and the Sylvania VP-7200. The package consists of the interface, operating software, and an infrared coupler. The interface has a software-controlled video-switching capability and embedded timing routines to provide frame-accurate playback of video clips. *(List Price: $125)*

Requires: Apple II Plus or IIe, compatible laserdisc player
Video Vision Associates
7 Waverly Place
Madison, NJ 07940
(201) 377-0302
CIRCLE READER SERVICE NO. **953**

II SERIES

▸ APPLEDAPTOR

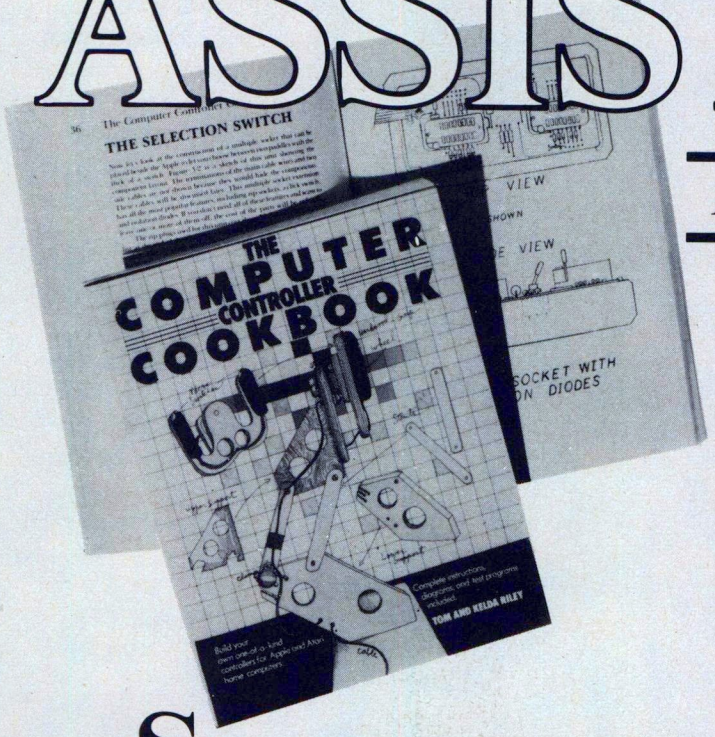
For Apple IIc owners who want to add a second floppy-disk drive to their systems, the AppleDaptor allows them to choose from any floppy-disk drive that is compatible with the Apple II, II Plus, or IIe. The AppleDaptor connects to the IIc through its external disk-drive port. *(List Price: $32.95; if you purchase a IIc-compatible drive from Micro-Design, $20)*

Requires: Apple IIc
Micro-Design
6301 Manchaca Road
Austin, TX 78745
(800) 531-5002
in TX (512) 441-7890
CIRCLE READER SERVICE NO. **954**

THE DO-IT-YOURSELFERS'

PROJECT ASSISTANT

BY TOM & KELDA RILEY



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MACTYPE FROM PALANTIR. THE TYPING TUTOR THAT IS

F

FIRST

Palantir knows that if your Macintosh™ is to be fruitful, you must first conquer the keyboard. And for many, that means learning how to type. So, Palantir created MacType. It's the first typing tutor for the Macintosh to put to use benefits of proven teaching techniques that speed up learning. Simply, MacType uses mental patterning to reinforce manual exercises. It teaches your fingers and your brain rather than your eyes, and you learn more quickly. If one of your first tasks on the Macintosh is to learn how to type, think of MacType first.

A

ADVANCED

Palantir designed MacType to be the most advanced typing tutor for the Macintosh that is available today. MacType takes full advantage of Macintosh's flexible screen displays and the simple functioning of its mouse to teach you how to type. All the know-how that has gone into the most complex Palantir Software was used in the development of MacType. You're getting state-of-the-art technology even in this basic program. It takes advanced skill to create a fundamental program that is both fun and mental for the user. And you get MacType's advanced features at a price that is very competitive.

S

SIMPLE

Palantir has also designed MacType so that it is amazingly simple to learn and use. Because of the teaching principles inherent in the program, you will get up to an effective typing speed in a very short time. You can also use the skills you learn on MacType to operate any typewriter keyboard, not just the Macintosh. Compared to the other typing tutors, MacType will actually let you enjoy learning. You may like it so much that even after you've mastered its touch-typing technique, you'll go back to the MacType exercises to sharpen your skills and increase speed. MacType shows that working smart can be working simple.

T

TESTED

Palantir thoroughly tested MacType to insure that it will work for you. With it you will learn to type fast. MacType should be your first choice. It is based on advanced programming technology and is still simple to learn. MacType is another quality, "No Bull" product from Palantir. If you want to learn more, contact

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OMNIS 1, OMNIS 2, and OMNIS 3 are available for the Apple™ II Plus, IIc, IIe, III, IBM™ PC, IBM XT, DEC™ Rainbow, Victor/Sirius,™ Sage,™ and Apricot™ microcomputers. OMNIS 2 and OMNIS 3 are also available for Macintosh™ and Lisa™.

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The Information Manager. A sophisticated information management system. Capable of advanced error checking on data entry via a wide range of logical functions and operators. Multiple update and delete facilities. Upward file and data compatible with OMNIS 3. Supports hard disk systems and multi-user operation on local area networks.

OMNIS® 3

The Database Manager. A complete database management system. Supports up to 12 open files at any time. Operates as a relational or hierarchical database system. Flexible screen and report formatting and user-defined entry sequences allow screen overlays, custom messages, and menus. Can generate complete turnkey systems. Supports hard disk systems and multi-user operation on local area networks.

Compare the OMNIS family, Europe's best-selling microcomputer database software, with these database products:

	Retail price	Records per file	Fields per record/ file set	Open files	Max. char. per record	Built-in mail merge	Calculation fields	Customized menus & messages	User interface	DIF compatible	Hardware	Multi-user LAN
OMNIS 1	**$150**	**unlimited***	**120**	**1**	**3000**	**yes**	**yes**	**no**	**menu**	**yes**	**1,2,3,4**	**no**
PFS-File™	120	32K	32	1	1600	no	no	no	menu	no	1,2,3,4	no
PFS-Report™	120	-0-	-0-	-0-	-0-	no	Report only	no	menu	no	1,2,3,4	no
OMNIS 2	**295†**	**unlimited***	**120**	**1**	**9600**	**yes**	**yes**	**no**	**menu**	**yes**	**1,2,3,4,5,6**	**yes**
Database Manager II	295	unlimited*	40	1	2400	no	yes	no	menu	yes	1,2	no
DB Master™ App.	350	250K	100	1	1020	no	yes	no	menu	yes	3,4	no
IBM	595	1000K	250	1	3000	no	yes	no	menu	no	1,2	no
OMNIS 3	**445††**	**unlimited***	**1440**	**12**	**25000**	**yes**	**yes**	**yes**	**menu**	**yes**	**1,2,3,4,5,6**	**yes**
dBase™ II	695	65K	32	2	1000	no	yes	yes	comm	yes	1,2,3,4	no
CONDOR™ 3	650	64K	127	6	1024	no	yes	no	comm	no	1,2,3,4	no
R:BASE™ 4000	495	unlimited*	400	40	1530	no	yes	yes	menu	yes	1,2	no

*Limited only by disk capacity

Chart compiled from published information.

† $275 for Macintosh
†† $375 for Macintosh

1—IBM PC
2—IBM PCXT
3—Apple IIc, IIe, II Plus
4—Apple III
5—Macintosh
6—Lisa

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CREATIVE SOLUTIONS
4701 Randolph Road Suite 12
Rockville, Maryland 20852
(301) 984-0262

CIRCLE 139 ON READER SERVICE CARD

III

▸ TITAN III PLUS II

Now you can run Apple II software that requires 64K RAM on an Apple III computer. The Titan III plus II enhancement board for the Apple III offers an Apple II software-compatible language card, an Apple II game port, and an Apple II emulation disk. The board is available in three versions—16K, 64K, or 128K RAM. The 64K and 128K RAM versions also offer expanded bank-switched RAM capacity in the Apple II Emulation mode and provide a fast RAM disk in the Apple III native mode. *(List Price: 16K board, $299; 64K board, $399; 128K board, $499)*

Requires: Apple III

Titan Technologies, Inc.
310 West Ann Street
Ann Arbor, MI 48104
(313) 662-8542

CIRCLE READER SERVICE NO. **955**

MAC

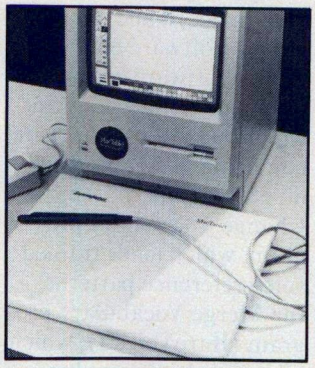
▸ THE KEEPER

Micro-Design's The Keeper hard-disk drive provides the Macintosh with up to 33 megabytes of additional storage capacity. It is available in six configurations—as either a one or two 5-megabyte, removable, hard-disk cartridge drive; as a 5-megabyte, removable, hard-disk cartridge drive and a 10-megabyte fixed drive; or as a 10-, 20-, or 33-megabyte fixed drive. The Keeper connects to the computer's printer port, has a built-in printer buffer, and uses its own intelligent controller. *(List Price: $2095–$3495)*

Requires: Macintosh

Micro-Design
6301 Manchaca Road
Austin, TX 78745
(800) 531-5002
in TX (512) 441-7890

CIRCLE READER SERVICE NO. **956**



MacTablet Graphics Tablet for the Macintosh, from Summagraphics

MAC

MACTABLET

The 6 × 9-inch MacTablet and its stylus turn the Macintosh into a real graphics workstation by adding the ability to trace and enter existing drawings as quickly and easily as putting pen to paper.

You can trace drawings from a single piece of paper or from originals up to ½-inch thick, such as material from magazines or notebook drawings. In addition, MacTablet is compatible with MacDraw, MacPaint, and other Macintosh software.

Notebook-size MacTablet fits conveniently next to the Mac's keyboard, and it works in conjunction with the Macintosh mouse, so there is no need to plug and unplug. It has a tilt mechanism for easy adjustment. *(List price: $495)*

Requires: Macintosh

Summagraphics Corporation
777 State Street Extension
Fairfield, CT 06430
(203) 384-1344

CIRCLE READER SERVICE NO. **957**

II SERIES

▸ SMT INDUSTRIAL CONTROL SYSTEMS

Systems Manufacturing Technology (SMT) has released five remote-control modules that allow you to use Apple II computers for industrial-data-collection and home-environmental applications. Adtech is a remote analog-to-digital converter module that can read up to ten analog inputs. Datech is a digital-to-analog converter that provides two analog outputs and six binary TTL outputs for control of external devices. Tritech, an AC and DC relay card, enables you to control up to four AC or DC loads and four optically isolated AC loads. Bytech contains 16 I/O lines with TTL interface, and Rytech is a relay board that contains eight 5V miniature DPDT relays and a relay driver.

To enable the Apple II to communicate with the remote-control modules, SMT manufactures the Aptech controller card, which plugs into an available slot on the Apple II. The controller contains a real-time calendar clock with battery backup and 2K additional memory for application programs. Each controller comes with a diskette that contains examples of typical applications, such as data acquisition, process control, and energy management. *(List Price: Adtech, $299; Datech, $209; Tritech, $269; Bytech, $129; Rytech, $159; Aptech, $199)*

Requires: Apple II, II Plus, or IIe; 48K RAM

Systems Manufacturing Technology, Inc.
1145 Linda Vista Drive
Suite 109
San Marcos, CA 92069
(619) 744-3590

CIRCLE READER SERVICE NO. **958**

MAC

▸ HYPERDRIVE

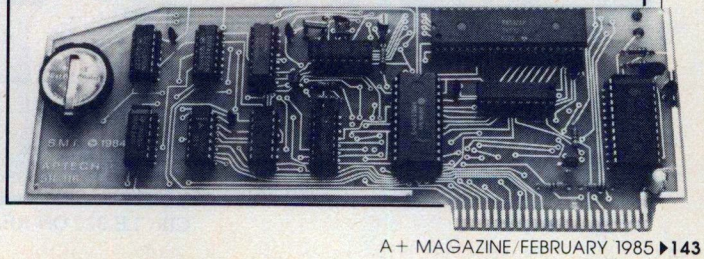
HyperDrive's 10-megabyte, internally mounted, 3½-inch, Winchester hard-disk drive enhances the Macintosh computer's data-transfer rate substantially. It also keeps the computer's serial ports available for modem, printer, and Apple Bus use. HyperDrive's software allows you to partition the hard disk into 32 file drawers, provides password security for individual drawers, and can make individual file drawers inactive. HyperDrive upgrades are available for both 128K and 512K RAM Macintosh computers; the 128K RAM model expands the computer's RAM to 512K. *(List Price: 128K Macintosh, $2795; 512K Macintosh, $2195)*

Requires: Macintosh

General Computer Company
215 First Street
Cambridge, MA 02142
(800) 422-0101
in MA (617) 492-5500

CIRCLE READER SERVICE NO. **959**

The Aptech controller card, from Systems Manufacturing Technology, Inc.



HARDWARE/ SOFTWARE

IIe SERIES

ZOOM MODEM IIe AND IIe PLUS

Zoom/Modem IIe is an advanced Hayes-compatible, auto-dial/auto-answer, 300-bps modem for Apple II computers. It comes with DOS/ProDOS-compatible communications software on disk.

Also available is the Zoom/Modem IIe Plus modem and software package, which includes the Zoom/Modem IIe and Zoom Advanced Communications Software.

This software's features include fast file transfer from disk to disk over phone lines, printer access, integrated text editing, and automatic direct dialing. Both packages come with $200 worth of premium offers from Dow Jones, NewsNet, and Delphi. *(List Price: Zoom/Modem IIe, $179; Zoom/Modem IIe Plus, $229)*

Requires: Apple II, II Plus, or IIe

ZOOM Telephonics
207 South Street
Boston, MA 02111
(617) 423-1072

CIRCLE READER SERVICE NO. **906**

IIe SERIES

INTROVOICE I AND II

The IntroVoice speech-recognition system allows you to speak to your computer. The system converts spoken words into commands and data and enables you to run any Apple-compatible application software, regardless of its operating system or programming language. The package contains a plug-in board and Voice Utility Software on a disk.

The software comprises the Voice Utility program, which you can use to create, edit, train, test, and recognize a vocabulary; the Change Vocabulary program, which loads trained voice-reference patterns; the Merge Vocabulary program (IntroVoice I), which allows multiple speakers; and Application Vocabularies, several ready-to-use vocabularies for use with popular software such as WordStar and VisiCalc.

IntroVoice comes in two versions—I and II. IntroVoice I offers 8K static RAM, 4K ROM, 80 words per phrase, and 50 characters and 2 character strings per vocabulary item. IntroVoice II has 16K static RAM, 8K ROM, 160 words per phrase, 80 characters and 3 character strings per vocabulary item, and 3 user-defined strings per group name. *(List Price: IntroVoice I, $460–$595; IntroVoice II, $1045–$1150; IntroVoice IE, $495–$625; IntroVoice IIE, $1120–$1225)*

Requires: Apple II, II Plus, or IIe

The Voice Connection
17835 Skypark Circle
Suite C
Irvine, CA 92714
(714) 261-2366

CIRCLE READER SERVICE NO. **967**

CIRCLE 322 ON READER SERVICE CARD

▶SOFTWARE

MAC

▶MAC MEMORY DISK FOR 512K MACINTOSH

Mac Memory Disk from Assimilation Process is a high-speed RAM disk for the 512K Macintosh. It allows users to allocate the potentially unused portion of the Macintosh's 512K memory and install a RAM disk. The RAM disk operates nearly ten times faster than a conventional disk. *(List Price: $29)*

Requires: Macintosh

Assimilation Process
20833 Stevens Creek Blvd., Suite 101
Cupertino, CA 95014
(408) 446-0797

CIRCLE READER SERVICE NO. **908**

MAC

▶MACFORTRAN

A version of ANSI FORTRAN 77 for the Mac, MacFortran is a disk-based compiler that facilitates development of large programs in limited memory. The package includes a linker, a library manager, IEEE routines, and Debug. Debug is an interactive debugger capable of debugging both program statements and variables. A subprogram using the Mac Toolbox provides graphics support. *(List Price: $295)*

Requires: Macintosh

Absoft Corporation
4268 North Woodward
Royal Oak, MI 48072
(313) 549-7111

CIRCLE READER SERVICE NO. **909**

Trivia Fever, from Professional Software, Inc.

II SERIES MAC

▶TRIVIA FEVER

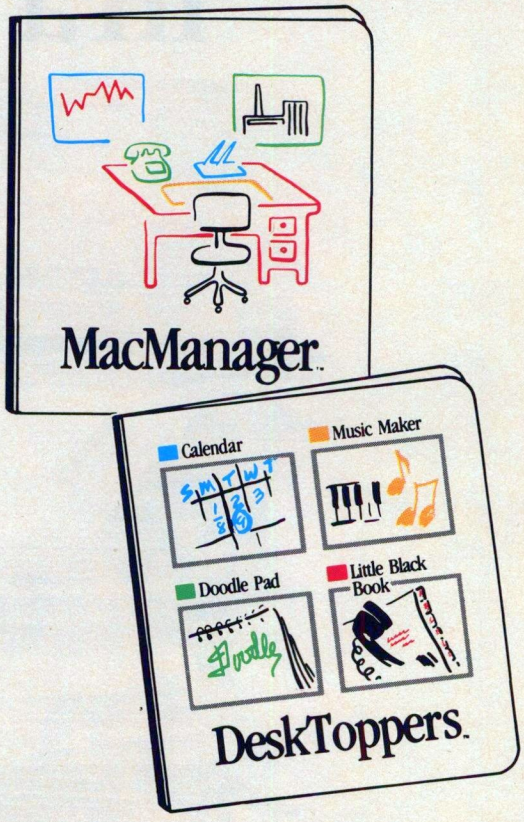
Trivia Fever is a trivia game that one to eight players or teams, ages 12 years to adult, can play either with or without a computer. Players elect a Master of the Game, and the game then interacts with each player through the Master. Players answer trivia questions of three varying difficulty levels in five out of seven randomly chosen or user-selected categories. The categories are science and technology, geography, history, sports, films and entertainment, famous people, and nature and animals. The package includes a Category Selector Spinner, Trivia Tally Sheets, and a color-coded *Book of Questions and Answers* for those who want to play without using a computer. *(List Price: $39.95)*

Requires: Apple II, II Plus, IIe, IIc, or Macintosh; 64K RAM; one disk drive; monitor

Professional Software, Inc.
51 Fremont Street
Needham, MA 02194
(617) 444-5224

CIRCLE READER SERVICE NO. **910**

Two Great Reasons For Using A Macintosh™



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Do you have what it takes to excel in the world of business? Sit down at your desk in the MacManager office and find out. Hone your business skills by planning a strategy that will rocket your company to the top and leave your competitors in the dust.

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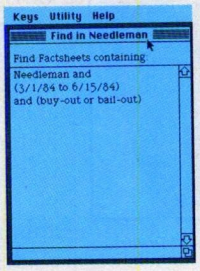
HARVARD ASSOCIATES, INC., 260 BEACON STREET, SOMERVILLE, MA 02143, (617) 492-0660, TELEX 880 792

CIRCLE 349 ON READER SERVICE CARD

It's easy with Factfinder.™ Because Factfinder is a kind of electronic "desk-drawer" where you can just toss information without worrying about how it should be arranged or how you might want to use it. There are no fields to define, no formats to set up.

When you need to find all the clients you have who hate olives or live in Denver; when you want to collect your notes on pasta merchandising; when you need the name and number of that guy who's looking for leveraged buyouts, it's yours in a few seconds, at your index fingertip.



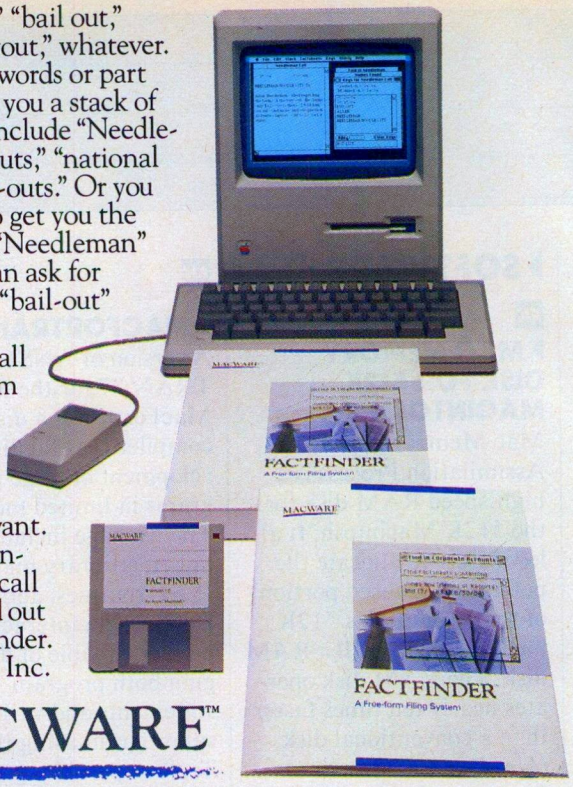
You just key in your notes on the Needleman Plan (or Needleman vs. Nardoff or the Needleman Noodles campaign) in any length you want, and click the mouse on a few key words—"fallout," "bail out," "roll-out," "leveraged buyout," whatever.

Then, any of those words or part of those words will bring you a stack of notes you've made that include "Needleman," or "leveraged buyouts," "national rollouts" or miracle "bail-outs." Or you can request Factfinder to get you the Factsheet that contains "Needleman" *and* "bail-out." Or you can ask for anything that mentions "bail-out" *or* "Needleman."

And Factfinder has all kinds of features like zoom and automatic wrap to help you manipulate the heck out of your data, and make it whatever size and shape you want.

Contact your Macintosh™ software dealer, or call 1 800 MACWARE to find out where you can get Factfinder.

From Forethought, Inc.



MACWARE™

CIRCLE 127 ON READER SERVICE CARD

How to find a Needleman in a haystack.

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Factfinder is a trademark of Fact Finder Software, Inc.
Macintosh is a trademark of Apple Computer, Inc.

II SERIES

▸ GRAPHICS LIBRARY DISK 1 FOR THE PRINT SHOP

Brøderbund Software has released The Print Shop Graphics Library Disk 1 for use with its Print Shop program. The Print Shop lets you write, design, and print greeting cards, letterheads, signs, and banners and comes with a variety of built-in type styles, borders, and graphics images. The Graphics Library Disk 1 contains an additional 120 new designs that include the 12 Zodiac signs, sports symbols, images for use in schools, background patterns for typeset pieces, and special-occasion images for such holidays as Christmas, Easter, and Mother's Day. *(List Price: $24.95)*

Requires: Apple II Plus, IIc, or IIe; 48K RAM

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE READER SERVICE NO. **911**

MAC

▸ ELECTRIC CHECKBOOK

The Electric Checkbook, a personal-finance software package, takes advantage of all the Macintosh's features. The program enables users to set up and record bills on a one-time or recurring basis and gives them the choice of either computer- or hand-written checks. The program can also perform bank reconciliations automatically, analyze income and expenses by category, produce detailed personal financial statements, and maintain multiple checking accounts. *(List Price: $79.95)*

Requires: Macintosh, 128K RAM

State of the Art, Inc.
3191C Airport Loop
Costa Mesa, CA 92626
(714) 850-0111

CIRCLE READER SERVICE NO. **912**

II SERIES

▸ DISNEY/SIERRA EDUCATIONAL SOFTWARE

Walt Disney Personal Computer Software and Sierra On-Line have released two products in their new Disney/Sierra series of educational software.

A game that develops mapping and reading skills, Winnie the Pooh in the Hundred Acre Wood challenges children of ages 7 and up to find objects scattered through the Hundred Acre Wood. Players must search for a different group of ten objects in each game and return the objects to their rightful owners.

Mickey's Space Adventure uses children's mapping and problem-solving skills while it teaches them about our solar system. Players join Mickey and Pluto as they search for the planet Oron's past. The memory crystal that contains the history of Oron has been shattered into nine fragments and scattered in space. Guided only by an on-board computer, the child must direct a spaceship through our solar system and retrieve the crystal fragments in the right order. *(List Price: $39.95 each)*

Requires: Apple II, II Plus, IIe, or IIc

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Sierra On-Line Building
Coarsegold, CA 93614
(209) 683-6858

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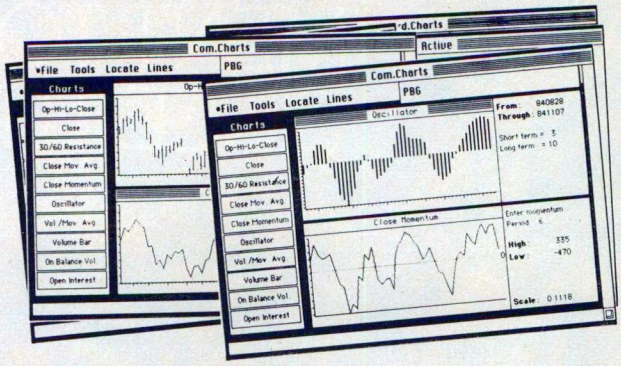

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Button•down Software
P.O. Box 19493 San Diego, CA 92119
619/234-0236

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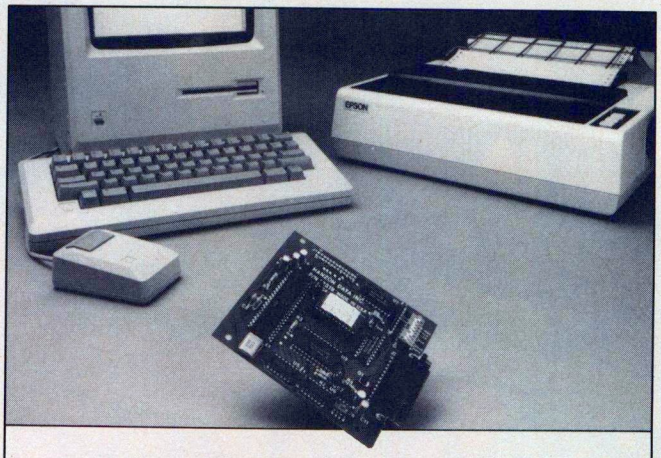

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Requires: Apple IIe or IIc
Manzanita Software Systems
One Sierra Gate Plaza
Suite 200-A
Roseville, CA 95678
(916) 781-3880

CIRCLE READER SERVICE NO. **914**

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Requires: Apple IIe or IIc
Precision Software, Inc.
3003 Summer Street
Stamford, CT 06905
(203) 326-8649

CIRCLE READER SERVICE NO. **915**

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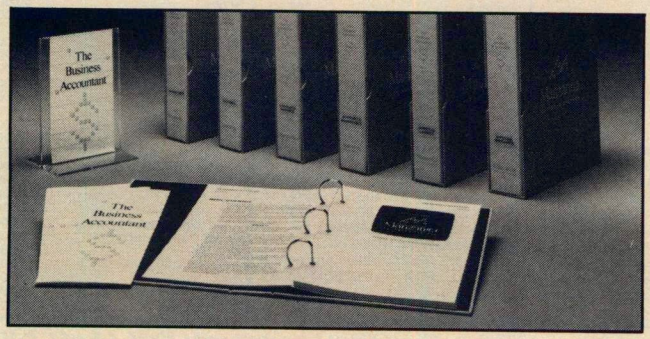

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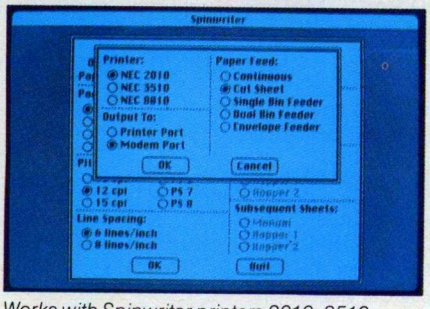

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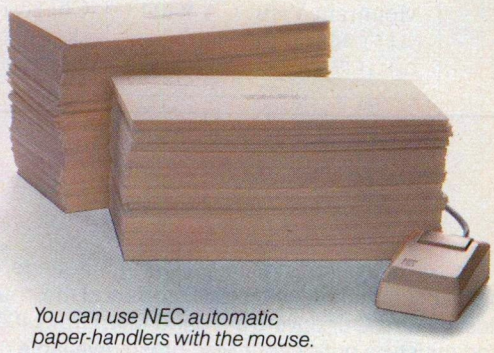

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- ☐ Spinwriter 3510
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NEC

NEC Information Systems, Inc.

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MAC

▸ KLONDIKE

A version of solitaire for the Mac, Klondike has thirty-to-one odds against winning. Facilities are provided for cheating, and there are appropriate penalties for getting caught. Players can keep scores based on the amount of time it takes to win or how much progress they make before losing. This feature makes it possible to compete against the computer or other players. *(List Price: $39.95)*

Requires: Macintosh

Computing Capabilities
465-A Fairchild Drive
Suite 122
Mountain View, CA 94043
(415) 968-7511

CIRCLE READER SERVICE NO. **922**

II SERIES

▸ MR. DO!

An arcade-style game for Apple II-series computers, Mr. Do! puts the player on a course through cherry fields where he grabs fruit for bonus points. Hungry monsters pursue Mr. Do!, and his only defense is his amazing powerball and the tasty treats he throws to slow the monsters down. Giant apples are used to put an end to the pursuers. Mr. Do! involves 99 levels of difficulty. *(List Price: $39.95)*

Requires: Apple II, II Plus, IIe, or IIc

DataSoft, Inc.
19808 Nordhoff Place
Chatsworth, CA 91311
(818) 701-5161

CIRCLE READER SERVICE NO. **923**

MAC

▸ HIPPO-C LEVEL 1

Hippo-C Level 1 is a C compiler that runs on a standard 128K single-drive Macintosh. It follows the Kernighan and Ritchie C definition, except for floating point, and comes with an editor, compiler, linker, symbolic debugger, C library, on-line tutorial, and shell-command processor. Hippo-C allows access to more than 380 Mac Toolkit and QuickDraw routines. *(List Price: $149.95)*

Requires: Macintosh

Hippopotomus Software
Oakmead Parkway
Suite 210
Sunnyvale, CA 94086
(408) 730-2601

CIRCLE READER SERVICE NO. **924**

LISA

▸ PLOTS II

This plotter-driver program lets you plot almost anything you can paste into a LisaDraw document on the Hewlett-Packard HP7475 six-pen plotter. A separate version is available for the HP7586B drafting plotter. Paste your LisaDraw or LisaGraph document into LisaDraw, and Plots II will produce a continuous one-piece drawing. *(List Price: HP7475 version, $295; HP7586B version, $595)*

Requires: Lisa

Computer Shoppe
615 Guilford-Jamestown Road
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It makes editing programs as easy as cutting and pasting and pointing and clicking. Debugging is easier than ever with the advanced trace command.

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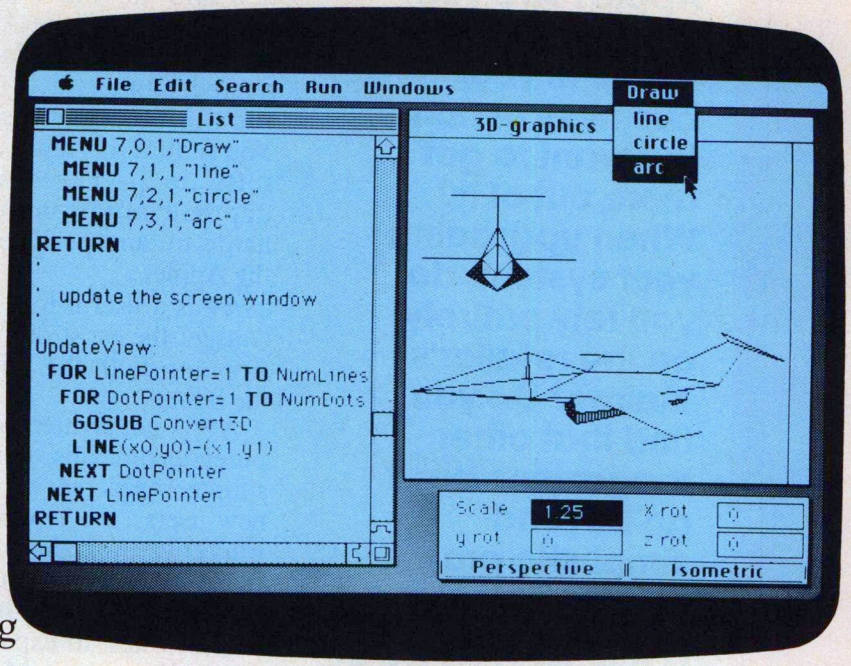

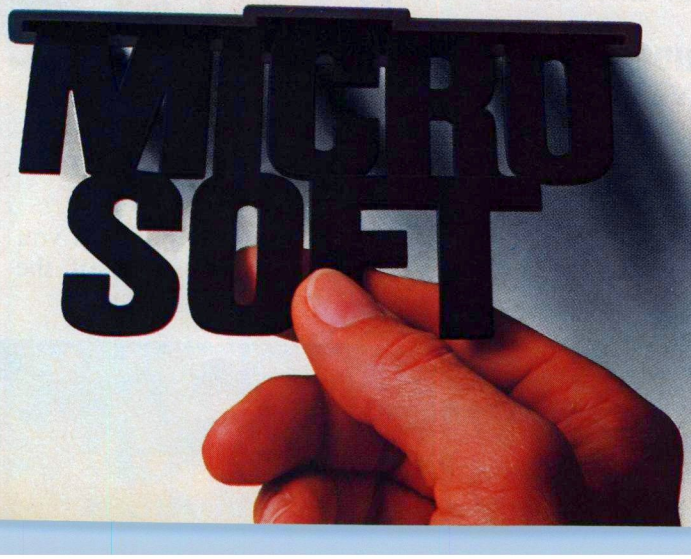

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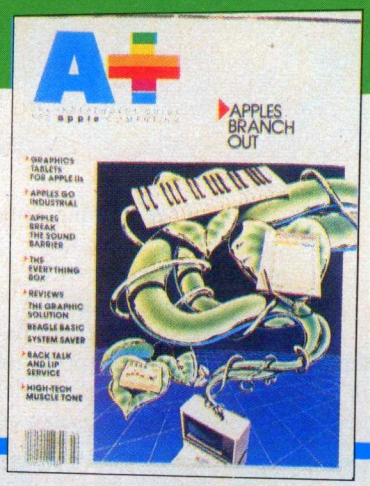

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II SERIES

▸ MINDSCAPE SOFTWARE

Mindscape has released four new software products. Crossword Magic, part of the company's Alert product line of recreational software for teenagers and adults, lets users create crossword puzzles on any subject. Users enter words and clues, and the program creates a crossword puzzle. The created puzzles can either be kept on disk or printed out.

Keyboard Cadet, in Mindscape's Folio line of productivity/utility programs, teaches touch-typing and features 3-D graphics and a game format. On-screen animated hands move to appropriate keys to illustrate correct finger reaches and proper hand positioning. Typists move from introductory lessons through key practice to timed tests of typed paragraphs.

Tonk in the Land of Buddy-Bots is one of eight TINK! TONK! programs in the Sprout line of educational software for children ages four through eight. Tonk leads children through the dangers and surprises of Buddy-Bot Land in a search for the parts of a Buddy-Bot robot. The program develops concentration, visual discrimination, and critical-thinking skills throughout its five games, each of which has a choice of difficulty levels.

Finally, Bank Street StoryBook by George Brackett is a story processor in the Pixelwerks software line for children of eight years and over. Children can use the program to create animated graphics and text anywhere on the screen.

A Pause feature lets users control the rate of animation and pace of presentation. Users can either view multipage stories with on-screen dynamics or print them out in book form. *(List Price: Crossword Magic, $49.95; Keyboard Cadet, $39.95; Tonk in the Land of Buddy-Bots, $34.95; Bank Street Storybook, $39.95)*

Requires: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive

Mindscape, Inc.
3444 Dundee Road
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Boise, Idaho 83706
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MAC

▸ RAGS TO RICHES SERIES FOR MACINTOSH

Chang Labs' Rags to Riches accounting-software series, designed for businesses with fewer than 20 employees, is now available for the Macintosh. Each module in the series—MacLedger, MacPayables, MacReceivables, and MacSales—is a single-disk program. The implementation of the series for the Macintosh makes full use of graphic icons, pull-down windows, and the mouse.

The Ledger module assigns up to 100 accounts and constantly displays income, expenses, assets, liabilities, estimated profits, and net worth. It also provides reports such as audit trails, chart of accounts, and transaction backup reports. The Payable module provides users with an automated bill-paying system, the Sales module acts like a sales-register system, and the Receivables module shows the exact status of any customer account and can print invoices and statements.

Also available are four Rags to Riches Solution Booklets.

Requires: Macintosh

Chang Laboratories, Inc.
5300 Stevens Creek Blvd.
San Jose, CA 95129-1088
(408) 246-8020

CIRCLE READER SERVICE NO. **916**

Computer Software's MacLion

MAC

▸ MACLION

A relational-database-management system for the Macintosh, MacLion also contains a Report Writer and a Screen Generator. These features let users define and see a preview of reports or screens by moving fields into position with a mouse. The screen generator also has multirelational capabilities for both entering data into and extracting data from a database. The system's use of the Mac's mouse and pull-down menus makes it easy to use, and applications developed under MacLion can also use the mouse, pull-down menus, dialog boxes, and programmable buttons. You can increase MacLion's performance if you use a 512K Mac and/or a hard-disk drive. *(List Price: $626)*

Requires: Macintosh, 128K RAM, two floppy-disk drives

Computer Software Design
1911 Wright Circle
Anaheim, CA 92806
(714) 634-9012

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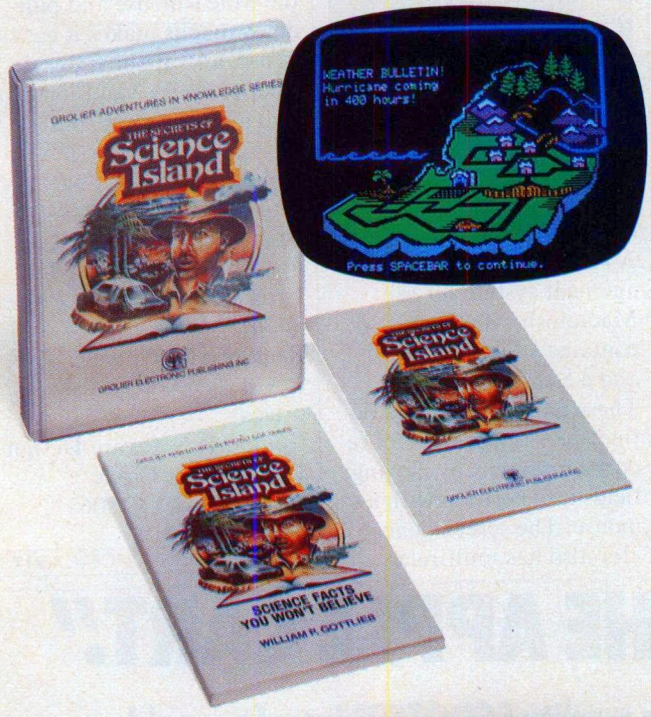

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▸ DAZZLE DRAW

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Requires: Apple IIe, or IIc, 128K RAM, 80-column card (Apple IIe), a Revision B board, one disk drive, color monitor or TV

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE READER SERVICE NO. **960**

II SERIES

▸ CONAN

In Conan, the latest release in Datasoft's Famous Faces line of computer games, players must take the hero through seven different castle chambers in his quest for wealth and immortality. Each chamber offers more vicious foes and dangerous obstacles.

Even if Conan succeeds in slaying the flame monsters and flying dragons, he must still beware of treacherous pools, lava pits, and spike pits. The exit from each chamber is clearly marked, but the key to unlock the door is revealed only after Conan has captured all the gems and placed them in the correct location. *(List Price: $39.95)*

Requires: Apple II, II Plus, or IIe

Datasoft, Inc.
19808 Nordhoff Place
Chatsworth, CA 91311
(800) 423-5916 or
(818) 701-5161

CIRCLE READER SERVICE NO. **985**

MAC

▸ THE DESK ORGANIZER

This Desk Organizer for the Macintosh makes use of icons, pull-down menus, and the mouse. The program aids in filing, alphabetizing, indexing, cross-referencing, telephone dialing, writing and printing, calculating formulas with up to 26 variables, transferring data, and managing time. The Desk Organizer runs alongside other Macintosh software programs. *(List Price: $250)*

Requires: Macintosh

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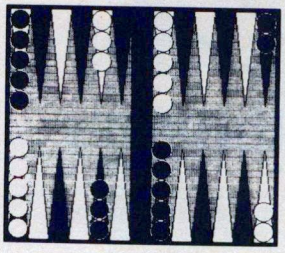

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MAC

▸ CHEQUEBOOK FINANCE PROGRAM

An easy-to-use checkbook program that enables users to balance both household and business finances is available for the Macintosh computer. ChequeBook can display an on-screen pro-forma bank statement, register all checks, produce a forward balance, reconcile bank statements, disburse entries into budget categories, post all checks cleared, generate a general ledger for 100 different accounts, display a trial balance, analyze cash flow, and maintain personal-information files.

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Requires: Macintosh

Intermatrix, Inc.
5543 Satsuma Avenue
North Hollywood, CA 91601
(818) 509-0474

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MAC LISA

▸ JAZZ BUSINESS SOFTWARE

A multifunction business-software package for the Macintosh, Jazz features word processing, worksheet analysis, database management, communications, and business graphics. Using Jazz's five integrated functions, you can prepare documents such as analyses, budgets, memos, proposals, and reports. The package also contains a primer that uses a hands-on approach to learning and a handbook that describes the product's capabilities. The software can work with the Imagewriter printer and a modem. *(List Price: $595)*

Requires: Macintosh or Lisa (with MacWorks), 512K RAM, two external disk drives.

Lotus Development Corporation
161 First Street
Cambridge, MA 02142
(617) 492-7171

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MAC

▸ PROFIT STALKER FOR THE MACINTOSH

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Requires: Macintosh, Microsoft BASIC, Imagewriter

Button-Down Software
7028 Cowles Mountain Blvd.
P.O. Box 19493
San Diego, CA 92119
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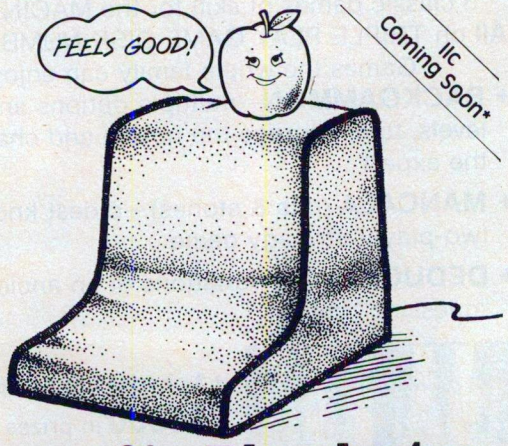

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▸ MACINTOSH LODE RUNNER

Lode Runner for the Macintosh pits a galactic commando against a gang of guards in a quest to recover stolen chests of gold from the Bungeling Empire's treasury rooms.

The galactic commando runs, jumps, and climbs his way through the rooms. When he scoops up a gold chest in one room, a ladder drops down and takes him into the next room.

In addition to getting 150 standard game screens, you can create custom game screens using the built-in game generator and a mouse. *(List Price: $39.95)*

Requires: Macintosh

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170
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MAC LISA

▸ GALLERY

An accounting and business-management package for the Macintosh and Lisa, Gallery consists of a core module that supports accounts receivable, accounts payable, general ledger, and profit-and-loss statements. Every screen is modeled after the one-write manual accounting system. Additional modules are under development, including Financial Analysis/Planning and Budgeting, Business Graphics, Payroll/Personnel, and more. *(List Price: $795)*

Requires: Macintosh or Lisa

Micromax Systems, Inc.
6868 Nancy Ridge Drive
San Diego, CA 92121
(619) 457-3131
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II SERIES

▸ ADVENTURE CONSTRUCTION SET

Adventure Construction Set (ACS) enables you to design graphics and text for adventure games that one to four players can play. Adventure Construction Set actually comprises three products: the Adventure Construction Set; Rivers of Light, a complete adventure set in Egypt and the Near East during the Dawn of Man; and Land of Aventuria, a tutorial that contains seven mini-adventures, each one based on a theme that you can create using the construction set.

Players can modify these mini-adventures, as well as Rivers of Light, to help them learn how to build their own adventures with ACS.

Although you can use Adventure Construction Set to build any game, it provides you with three predefined formats—fantasy and medieval, spies and mysteries, and science-fiction. *(List Price: $50)*

Requires: Apple II, II Plus, IIe, or IIc; joystick

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2755 Campus Drive
San Mateo, CA 94403
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II SERIES

▸ KARATEKA KARATE GAME

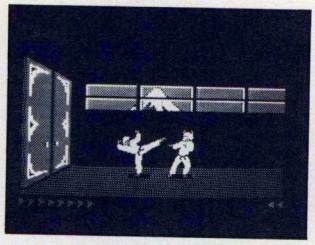
Karateka is a game that is designed to make you feel as though you were the hero of an action-packed animated movie.

The game's story line concerns a young karate master who must fight an evil warlord to rescue his bride-to-be. To defeat the warlord, the master has to kill a succession of warriors by using his karate skills. *(List Price: $34.95)*

Requires: Apple II Plus, IIe, or IIc; 48K RAM; joystick

Broderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE READER SERVICE NO. **935**



Karateka, from Broderbund, has realistic sound and animation.

MAC

▸ FRONT DESK

The first product in a series of low-cost business-management software for professional and service companies, Front Desk is a calendar and time-accounting package. The program enables users to integrate schedules for up to 15 people or activities and then to report and forecast productivity and revenues by person or for the entire business. The program maintains employee schedules for up to 12 months, provides time-accounting information, and enables users to assign billing rates to up to 15 standard services used in their business. *(List Price: $149.95)*

Requires: Macintosh

Layered, Inc.
85 Merrimac Street
Boston, MA 02114
(617) 423-9041

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II SERIES MAC

▸ TAXWIZARD '84/85

A fully integrated tax-preparation package, TaxWizard '84/85 can handle Form 1040, as well as 20 additional forms and schedules. The program links all forms automatically, so that changes in any forms are reflected in your entire set of forms and schedules. The program supports multiple individual users, and you can enter data directly onto on-screen facsimiles of IRS forms. The package includes a complete manual and 1984 IRS-approved forms. *(List Price: $64.95)*

Requires: Apple II Plus or IIe with 64K RAM, two disk drives, and 80-column card; Apple IIc, IIe, or Macintosh with 128K RAM and one disk drive

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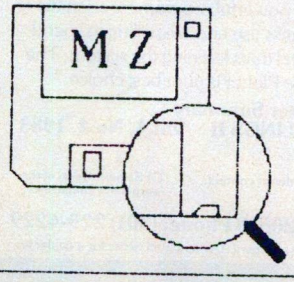

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MAC

▸ MAC C AND MAC C TOOLKIT

A C compiler for the Macintosh, Mac C is fully integrated with the editor, assembler, debugger, and linker of the Macintosh 68000 Development System. The Mac C Toolkit provides C interfaces to standard Macintosh files such as dialogs and desk accessories.

Mac C allows access to 450 Macintosh system calls and compiles 1600 lines of code per minute. The Macintosh 68000 Development System is required for use of the Mac C and Mac C Toolkit. *(List Price: Mac C, $295; Mac C Toolkit, $175)*
Requires: Macintosh
Consulair Corporation
140 Campo Drive
Portola Valley, CA 94025
(415) 851-3849
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MAC LISA

▸ TIMEBASE

An integrated program for the Macintosh, TimeBase makes use of overlapping windows to provide five business features—time management, information management, centralization, forms and letters, and TMP (tracking, maintaining, and planning)—on a single disk. You can use the program with other Macintosh programs, such as word processors, databases, spreadsheets, and accounting programs. You use the mouse to generate commands and functions, and the keyboard for data entry. *(List Price: $149.95)*
Requires: Macintosh or Lisa (under MacWorks)
SoftDesign
14145 S.W. 142 Avenue
P.O. Box 161377
Miami, FL 33186
(305) 253-5521
CIRCLE READER SERVICE NO. **933**

II SERIES

▸ THE HITCHHIKER'S GUIDE TO THE GALAXY

Written by Douglas Adams, the author of the book of the same name, and Infocom's Steve Meretzky, The Hitchhiker's Guide to the Galaxy is an interactive science-fiction game. The first part of the game follows the book's story line: You are Arthur Dent, a hapless earthling whose house is about to be destroyed by bulldozers. Unknown to you, plans are afoot for the destruction of the entire planet, but your friend Ford Prefect helps you escape by hitching a ride on a Vogon flagship. Once you are aboard the flagship, you find the characters and locations of *The Hitchhiker's Guide* appearing in a variety of misadventures that Adams has written expressly for the game. *(List Price: $39.95)*
Requires: Apple II, II Plus, IIe, or IIc
Infocom, Inc.
55 Wheeler Street
Cambridge, MA 02138
(617) 492-1031
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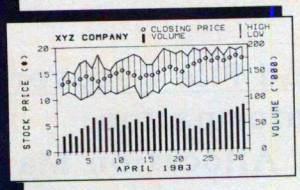
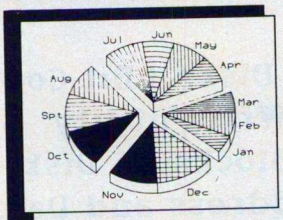
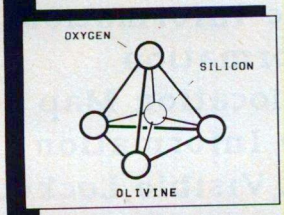


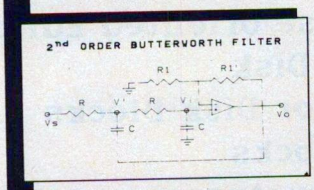
"The Prime Plotter is the kind of graphics package you'd expect to find on a mainframe computer." "Once mastered, there is no plotting package that is quite this versatile and powerful."
Gregory MacNicol
InfoWorld September 5, 1983



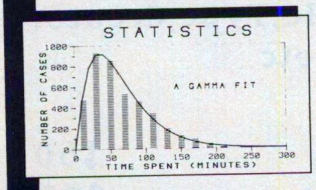
"Prime Plotter is a carefully conceived, well-executed package for business or scientific applications that can benefit from its great power." "Flexibility is the hallmark of this package."
AEDC
SOFTALK September 1983



"The Prime Plotter contains more power than any graphing package I have used." "It can do many things not found in other packages; I know of no competing program which can do as much!"
David Morganstein
Washington Apple Pi May 1983



"At first glance, it's almost overwhelming." "While simplicity is a key, the myriad of possibilities featured can test the ingenuity of even the most knowledgeable user."
Business Software
Vol. 1, No. 5, Sept./Oct. 1983



"The Prime Plotter is a surprisingly complete plotting package designed for a variety of applications. Routines to create X-Y plots, 3-D charts, bar graphs, and figure charts make the product the most powerful plotting package the reviewer has seen." "The product is superb for creating 'slide-show' presentations of generic data."
Chris Williams
MICRO August 1983

The Prime Plotter	$240
Demo disk, refundable	$15
Manual, 2nd edition, enhanced, for 1st-edition users only	$15

Plotter Interfaces:

STROBE 100/200	$60
SWEET-P100/COMREX CR-1810	$60
HIPLØT DMP-40/DMP-29	$75
HP 7475A/7470A/7220C	$75

PEELINGS II Rating

The Prime Plotter	A+
Apple II Business Graphics	A–
PFS Graph	B
Versaplot	D

"In conclusion, if you are looking for the most powerful program for scientific or business use and are willing to spend several days learning the system, The Prime Plotter is your best choice."
Plotter Summary
PEELINGS II Vol.4, No.4, 1983

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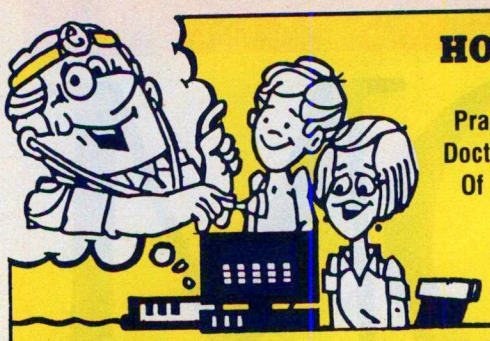

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Requires: Apple II Plus or IIe (IIc for computer-only applications), 64K RAM, ProDOS, one disk drive

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Requires: Apple II Plus, IIe, or IIc; one disk drive

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▸ THE MICRO-IMAGER VIDEO DIGITIZER

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Requires: Macintosh

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II SERIES

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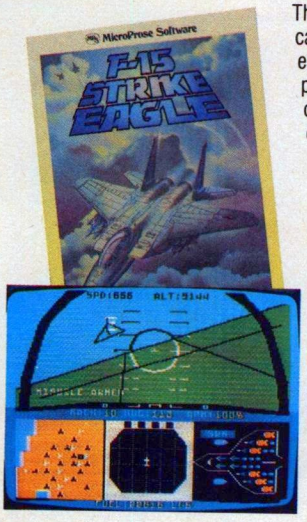

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F-15 STRIKE EAGLE is available for Commodore 64, ATARI (48K), and Apple II (64K) computers. Suggested retail price is only $34.95. Find STRIKE EAGLE at your local retailer, or call or write for MC/VISA, or COD orders. Add $2.50 for Postage and Handling (Int'l add $4.00USD). MD residents add 5% sales tax.

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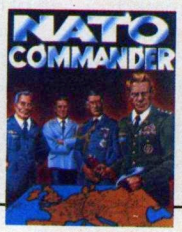

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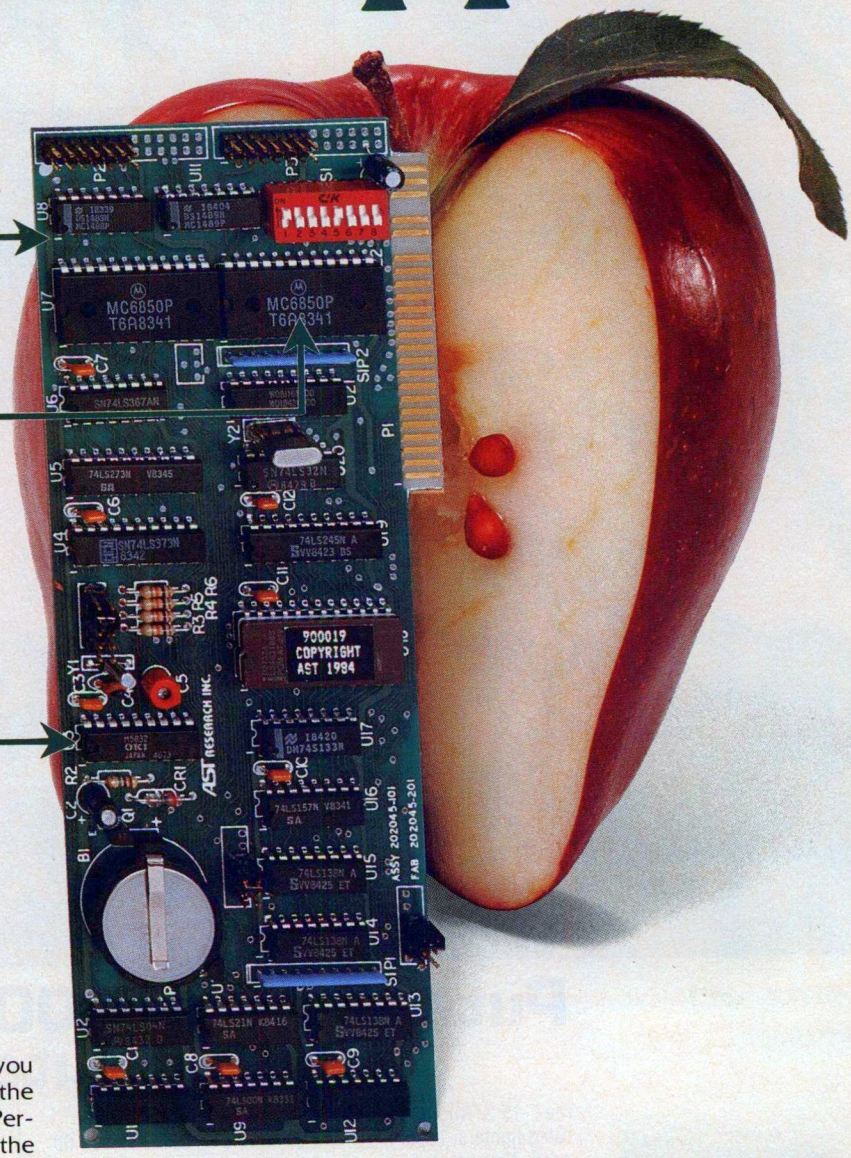

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Interested? Wait, there's more. Multi I/O is easy to use and plugs into any of the slots typically designated for one of its three functions. Putting three functions on one card reduces power consumption so you won't have to spend any additional dollars on auxillary power. And if you compare prices, you'll find that for a few extra dollars, Multi I/O will provide you with three functions instead of one!

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Rendezvous with Rama is based on an Arthur C. Clarke novel in which a captain of a small spaceship encounters Rama, an alien starship hurtling into the solar system.

In Dragonworld, based on a novel by Byron Preiss and Michael Reaves, the player encounters thieves, monsters, beggars, and artists during a search for the last dragon.

Shadowkeep, by Alan Dean Foster, is the first fantasy game to have inspired a novel by a major science-fiction writer. The player's task is to recapture the Shadowkeep and free the good wizard of Nacomedon. *(List Price: $39.95 each)*
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Requires: Macintosh, 128K RAM, Hayes Smartmodem 300/1200 or Apple Modem 300/1200, Imagewriter
Dow Jones Software
Box 300
Princeton, NJ 08540
(800) 222-0081
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▸ NETWORKS

MAC

▸ OMNINET NETWORK

Corvus Systems' Omninet local-area network is now available for Macintosh computers. The network can connect up to 63 Macintosh computers at distances of up to 4000 feet and runs at 700,000 bps. The network interface card is built into the computer-interface cable, which plugs into the Mac's modem port. *(List Price: Interface Card, $195; Software, $395)*
Requires: Macintosh and OmniDrive
Corvus Systems, Inc.
2100 Corvus Drive
San Jose, CA 95124
(408) 559-7000
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MAC LISA

▸ TOPS SYSTEM

The TOPS network enables computers of different makes and that have different operating systems to work together in a network. The hardware consists of an add-on card for machines that have expansion slots and an external network unit for other machines. A four-conductor telephone cable provides a physical link between computers. The software provides the standard ISO network layers and translates the requests of each supported operating system into generic requests that the TOPS software on remote machines can recognize.
Requires: Macintosh or Lisa
Centram Systems West
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Berkeley, CA 94704
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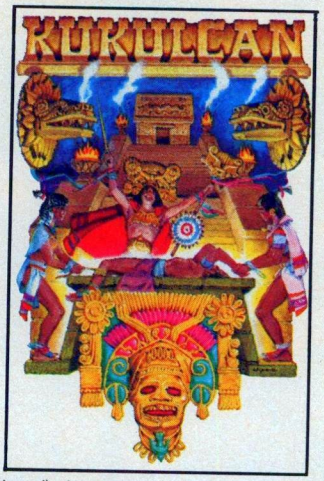

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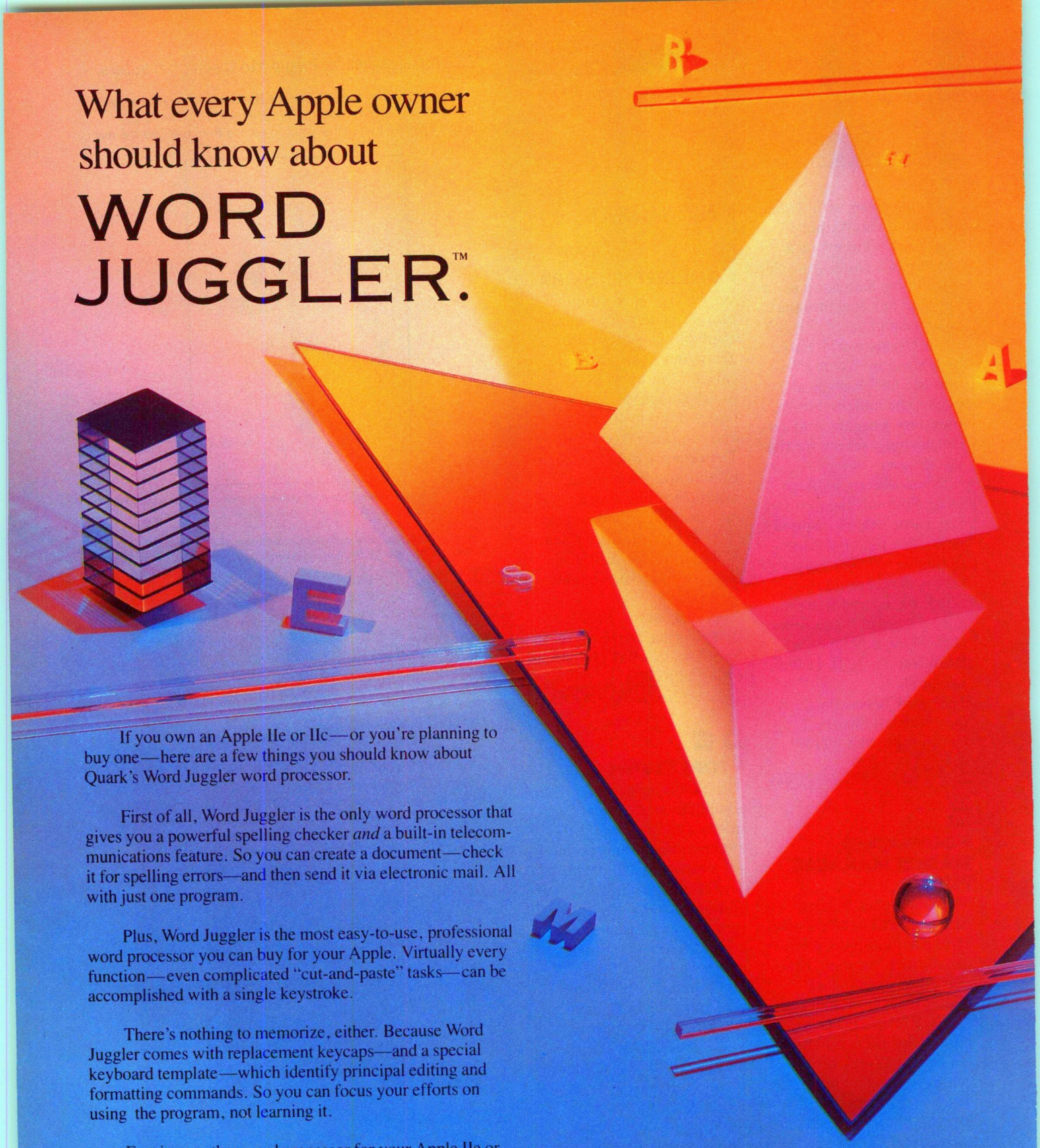
CIRCLE 244 ON READER SERVICE CARD

What every Apple owner should know about WORD JUGGLER™.



If you own an Apple IIe or IIc—or you're planning to buy one—here are a few things you should know about Quark's Word Juggler word processor.

First of all, Word Juggler is the only word processor that gives you a powerful spelling checker *and* a built-in telecommunications feature. So you can create a document—check it for spelling errors—and then send it via electronic mail. All with just one program.

Plus, Word Juggler is the most easy-to-use, professional word processor you can buy for your Apple. Virtually every function—even complicated "cut-and-paste" tasks—can be accomplished with a single keystroke.

There's nothing to memorize, either. Because Word Juggler comes with replacement keycaps—and a special keyboard template—which identify principal editing and formatting commands. So you can focus your efforts on using the program, not learning it.

Fact is, no other word processor for your Apple IIe or IIc gives you this unique combination of power, functionality and ease of use. And if all these advantages aren't compelling enough, check the price. Suggested retail is only $189.

So visit your favorite dealer today. Ask for a complete demonstration—and for a copy of our brochure, "What Every Apple Owner Should Know About Word Juggler." If you don't have a favorite dealer, but would like one, just call 1 (800) 543-7711. We'll fix you up.

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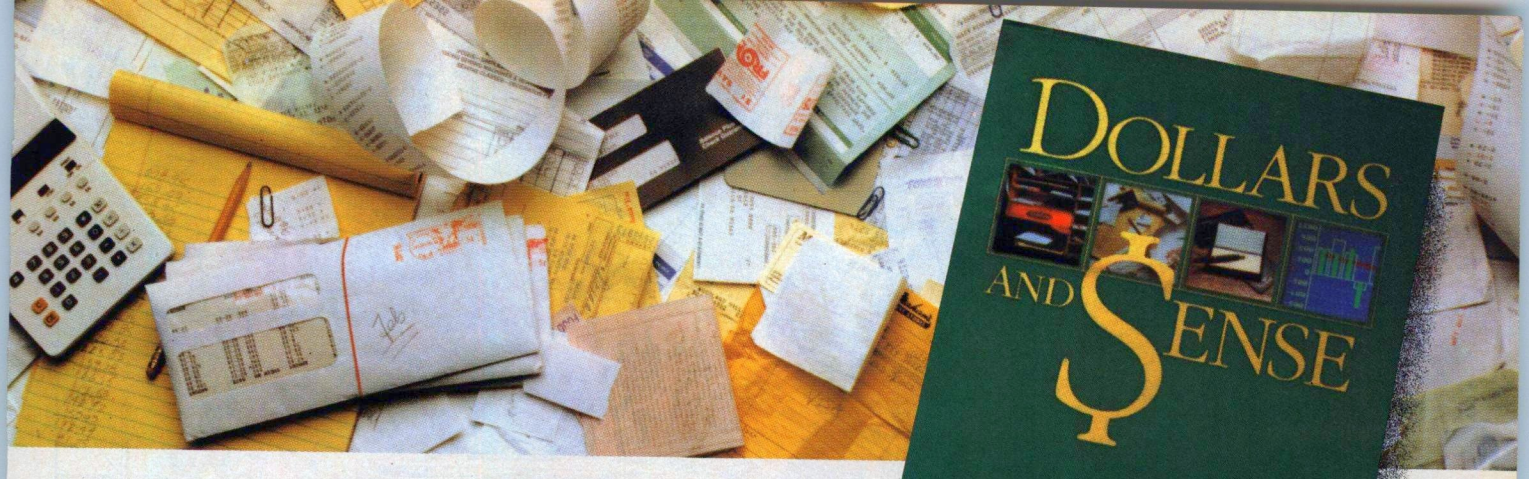

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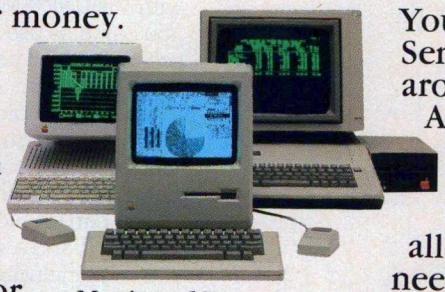

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**Available for Apple IIe, IIc and Macintosh. Also available for IBM® PC, PC XT, PCjr and compatibles, the TI Professional and other popular personal computers.

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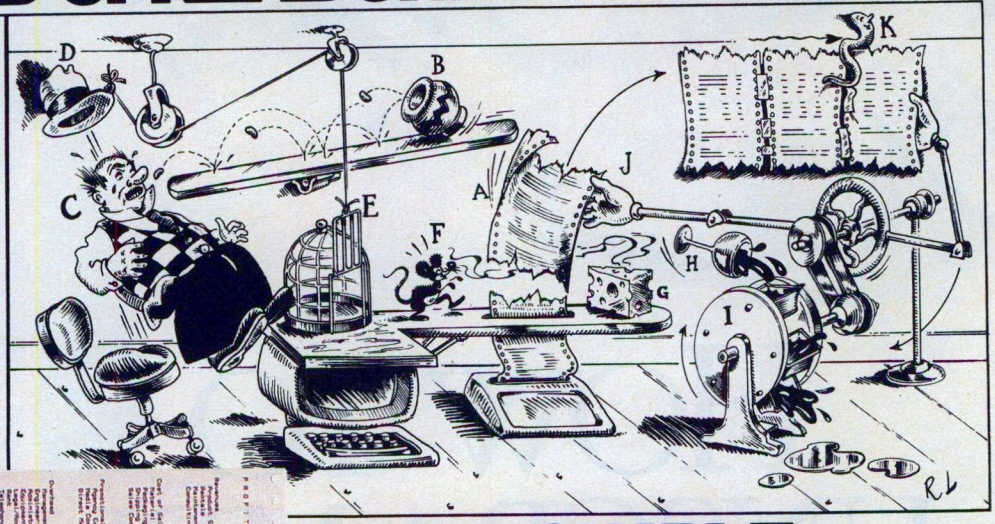
SIMPLIFIED SPREADSHEET ASSEMBLY

RISING SPREADSHEET (A) KNOCKS MEXICAN JUMPING BEANS (B) INTO MOUTH OF NEUROTIC MAN (C) WHO IS SO DISCOMBOBULATED THAT HIS HAIR STANDS ON END, DISLODGING HAT (D) WHICH OPENS CAGE (E) AND RELEASES EPICUREAN MOUSE (F).

MOUSE, INSPIRED BY SCENT OF PERFECTLY AGED CAMEMBERT CHEESE, GNAWS THROUGH SPREADSHEET, ONLY TO DISCOVER HE HAS BEEN FOOLED BY AROMA OF OVER-RIPE GORGONZOLA (G).

IN A FIT OF PIQUE HE SPILLS VINTAGE WINE (H) INTO WATER-WHEEL (I) WHICH TURNS PULLEY THAT CAUSES GLOVE (J) TO GRASP SPREADSHEET AND MOVE IT TO TAPING AREA.

SHEET IS TAPED SECURELY IN PLACE BY TRAINED ADHESIVE TAPE WORM (K).



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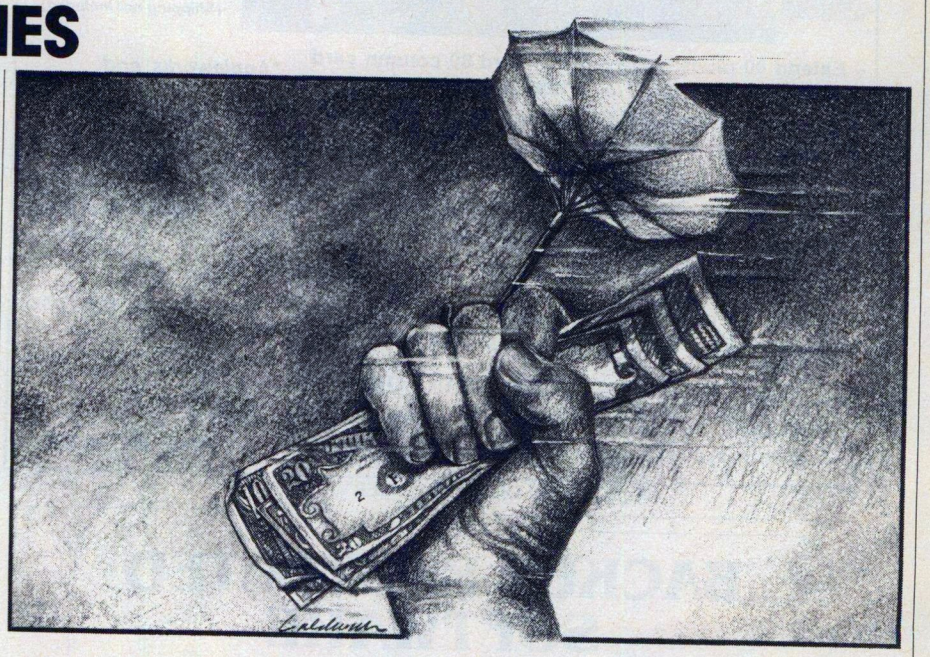
CIRCLE 154 ON READER SERVICE CARD

MONEY MATTERS
BY KENNETH M. LANDIS

This final installment in a three-part series on tax planning introduces you to the AMT.

ALTERNATIVE-MINIMUM-TAX STRATEGIES



As a great lama, who had retreated to the highest peak in Tibet to deliberate on man, once said, "I'm not perfect, there is too much responsibility in it." Well, in the December 1984 issue of *A+*, I revealed that I, too, am not perfect.

In that issue, I said that this month we would use Forecast from Monogram to do tax planning. But we can't. Why? When I was writing this month's column, Forecast was not yet available. Monogram has since released Forecast, though (see Pipeline in this issue) and if you own Monogram's Dollars and Sense, you should look into it.

So, instead of talking about tax planning in general, we are going to learn about a specific tax and ways to plan around it.

The tax is the alternative minimum tax (AMT). To plan around it, we are going to use the program we used last month to prepare our taxes—the Tax Manager from Micro Lab of Highland Park, Illinois.

Basically, the AMT is an add-on tax that comes to us courtesy of the Congress of the United States, specifically through the Tax Equity and Fiscal Responsibility Act of 1982—commonly referred to as TEFRA—the Congress's answer to Japanese monster movies.

The bottom line of the AMT is that it tries to make you pay at least a certain amount of your income in taxes, no matter how hard you try to shelter it.

Now that you know that no matter how hard you try to shelter income from taxes, you are probably going to get it in the end, you'll want to know how big your end is going to be. The AMT computation is very simple—it's 20% of your alternative-minimum-taxable income after exemptions. It's computing your alternative-minimum-taxable income that gets complicated.

Simply Complicated

You start with your adjusted gross income. Next, total your medical and dental expenses and subtract from that sum 5% of your adjusted gross income; deduct this amount from your adjusted gross income. Then, deduct your contributions and casualty and theft losses (up to the amount the law allows); interest on your home mortgage; and whichever is less—your other interest expenses or your net investment income (you can't use both).

No matter how hard you try to shelter income from taxes, you are probably going to get it in the end.

All of these items are known in the tax trade as "favored alternative tax itemized deductions." They reduce your alternative-minimum-taxable income. Thus, for planning purposes, they are good. It is the "tax preference items" that are bad.

Tax-preference items are those deductions on your income-tax return that represent a conscious effort to shelter your income from taxes or are exclusions oriented toward the "common man," which, if you are subject to the AMT, Congress has decided that you are *not*.

The shelter-oriented tax-preference items are depreciation on real or leased property, amortization of pollution-control facilities, mining exploration and development costs, certain research-and-development costs, reserves for losses on bad debts of financial institutions, depletion allowance, incentive stock options, and intangible drilling costs.

The common-man items are the

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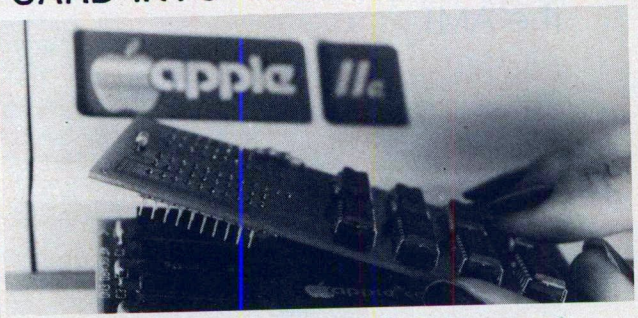

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In every case, either the entire amount or a percentage of it (based on the law) is added back to your already adjusted, adjusted gross income. The result is your alternative-minimum-taxable income. But what about the tax?

From your alternative-minimum-taxable income you can deduct $40,000 for a joint return or surviving spouse; $30,000 for single or head-of-household filer; or $20,000 for married taxpayers filing separately, or on returns for estates or trusts. Once you have taken the exemption, you multiply the result by .2 or 20%. Voilà, your alternative minimum tax! But you are not done yet.

From your alternative minimum tax, you deduct your total tax (form 1040, line 49). Then, if you have any foreign tax credits, you can also deduct them within the limitations established under the law. If, at the end of this whole process, you have a positive number, you add it to your form 1040, and that's how much money you owe Uncle Sam.

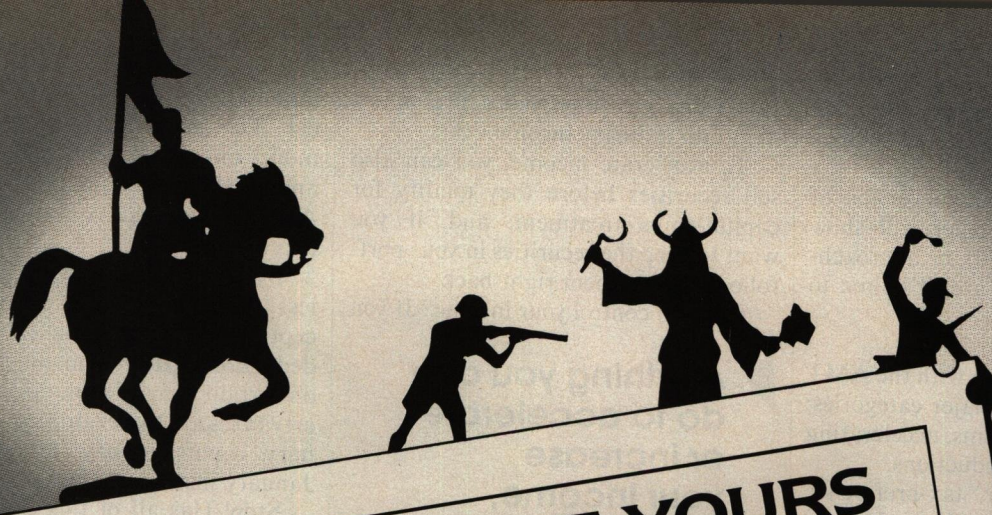
Statistically, Maybe

Are you subject to the AMT? Generally, if you earn more than $100,000 a year, you stand a one-in-ten chance of being subject to the tax. Another good indicator is the amount of your preference items—if they total at least 40% of your expected gross income, you are probably headed for the AMT.

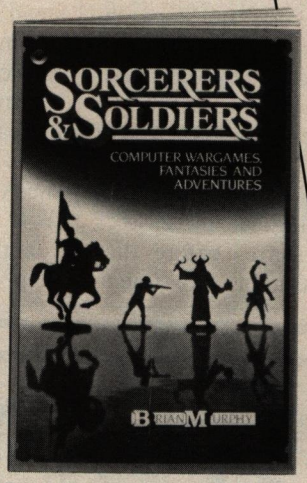
Now, before you decide to rent an empty pizza parlor and hang up an "alternative minimum tax advice" sign, be apprised. We have just scratched the surface of this complex, confusing tax. About the only advice you could give people is that they see their tax advisers if they think they might be subject to the AMT.

Finding out if you are subject to the tax and analyzing your alternatives are another matter, though. You don't need to be an expert to evaluate or plan, only to execute.

An excellent way to check to see if you are subject to the AMT is to use the Tax Manager program. The first and most obvious use for your Apple and Tax Manager is to automate all of the calculations. In minutes (rather than hours if you were doing the task manually), Tax Manager does all of your calculations by pulling in information that resides in other parts of your return so you don't have to key it in. The more complicated your return, the



VICTORY CAN BE YOURS ON THE ELECTRONIC BATTLEFIELD WITH SORCERERS & SOLDIERS



Conquest and glory await within the depths of your computer. You can mobilize whole armies with a single keystroke, uncover buried treasure, dodge sniper fire and save civilizations with the adventure games in *Sorcerers & Soldiers.*

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Anything you can do to accelerate or increase your income, without taking steps to shelter it, can help you avoid the AMT.

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If you think that accelerating income sounds a bit strange as a way to help you save money, then delaying deductions must sound positively maniacal. The normal strategy for saving money on your taxes is to delay income and accelerate deductions, but with the AMT, the world can appear topsy-turvy.

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Let Your Apple Do the Work

Here's where your Apple earns its keep by testing each strategy to see if it lowers or increases your taxes. Tax Manager increases the speed and accuracy of your calculations and advises which strategies to pursue. If you accelerate too much income, you will be paying taxes based on your marginal-tax rate, which can run as high as 50%. At those rates, the 20% AMT tax could be a bargain.

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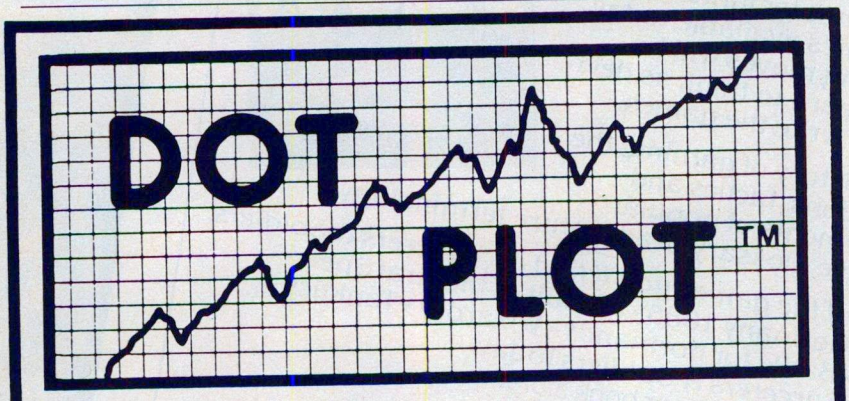

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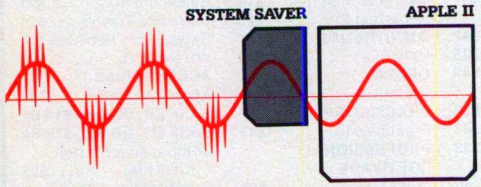

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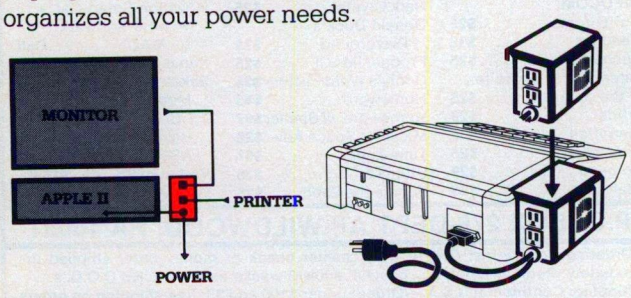

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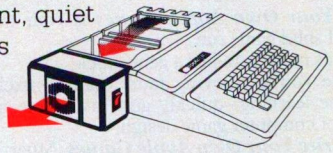

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from taxpayer to taxpayer, but the optimum strategy is to cause your regular tax to equal your AMT, while at the same time taking into account possible changes in the value of your investments and income stream.

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To test multiple strategies and do the calculations manually would be as maddening as the tax itself.

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For those of you who find that you are subject to the AMT, be aware that many tax advisers know no more than what you have just learned. Make sure your tax adviser is up to date on the new laws and how they affect you.

Finally, use your Apple to check your tax adviser's work. When it comes to the AMT, your Apple and Tax Manager can provide one of the best second opinions you'll find. +

Ken Landis is one of the "old men" of the microcomputer industry. He has been writing about and using his Apple for personal financial planning since 1978. Mr. Landis wishes to thank Douglas Weber of Alexander Grant and Company for technical advice on this column.

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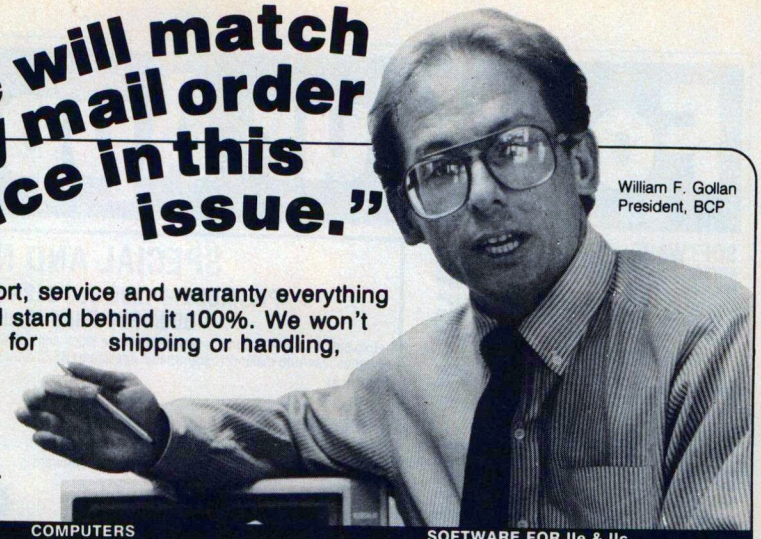

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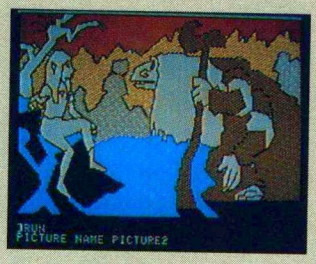

You are Jen, one of the last survivors of the Gelfling Race. You must find the missing shard of crystal and restore it to save the world from evil.

ADVENTURES WITH THE DARK CRYSTAL

In the movie *The Dark Crystal*, Muppet creator Jim Henson leaves the comic exploits of Kermit the Frog and Miss Piggy behind and weaves us a heroic tale of Jen and Kira, the last survivors of the Gelfling race. Gelfling Adventure, a graphic adventure game for kids based on the movie, propels you into the story line in a quest to save the world from evil.

As in most other adventure games, you take on the role of one character—in this case, Jen. With little information, you must explore the world around you to discover clues and hints that will help you solve a particular puzzle.

The illustrated screens provide a visual delight that seems to push Apple graphics to the limit. Artists Carl Potts, Michelle Prichard, and Greg Rowland deserve a hand for recreating the world of The Dark Crystal in painstaking detail.

Unlike most adventure games, which require you to type in two-word instructions, Gelfling Adventure makes you pick from a list of three choices at the bottom of the screen. This approach is both a strength and a weakness.

On the one hand, it is certainly easier for youngsters to pick a choice than it is to think up an action and type in words. Play moves faster and boredom rarely sets in. On the other hand, multiple-choice actions tend to herd you in a few set directions and limit the opportunity to solve puzzles from a completely different direction.

Since the game is based on the movie, the plot revolves around finding the missing shard of a crystal and restoring it to the crystal when three moons overlap—also a mixed blessing.

Although all the familiar sights and situations that made the movie popular are in the game, the solutions to the puzzles and problems also mimic the movie. If you saw the movie, you can escape any peril by repeating Jen's actions in the film.

THAT'S entertainment

If you have not seen the movie, the game can be pretty challenging, especially for the audience the game aims at—youngsters aged nine and up. Plan on spending a long afternoon figuring out the path

If you saw the movie, you can escape any peril.

through the maze of multiple choices. Even we veteran adventure gamers who'd seen the movie took an hour or two to heal the crystal.

The game needs no documentation, since you choose all actions from the screen, but Sierra includes an eight-page booklet with an informative "Gelfling Glossary," which is a Who's Who and What's What in the world of The Dark Crystal, and a black-and-white map of the world.

Gelfling Adventure is challenging and intriguing—once. If you have not seen the movie or did not enjoy it, you have little reason to buy the game. If you liked the movie, you should like the game, for it is a faithful recreation. You also know the ending and how to solve the puzzles, though, so after one session, Gelfling Adventure will probably wind up collecting dust on a shelf.

Russ Lockwood

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Back in the May 1984 issue of *A+*, we reviewed a frenetic arcade game called Lode Runner. Its premise was simple: run through the progressively more difficult mazes, evade the deadly Bungeling Empire guards, and pick up all the gold chests. At times, you had to tunnel through floors to grab the treasure. All in all, Lode Runner was a simple, fast-paced, and challenging arcade game.

Mean Screens

Well, Lode Runner's big brother, Championship Lode Runner, just checked into our Apple. It contains 50 of the meanest, toughest, and most devious screens ever devised to frustrate the fastest joystick jockeys in the galaxy. If you thought Lode Runner was tough, your reflexes ain't seen nuthin' yet.

As in the original, you race up and down ladders, go hand over hand on beams, and free-fall to the floor to outwit guards and grab the gold. On every screen, you must use your laser pistol to drill holes in the floor to gain access to

the chests. The holes fill in after a time, preferably trapping a guard rather than you.

But those screens, those terrible screens, those horrible, nasty, nerve-wracking,

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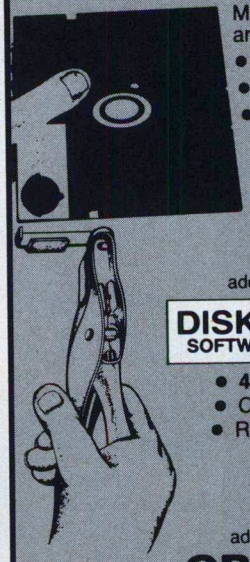

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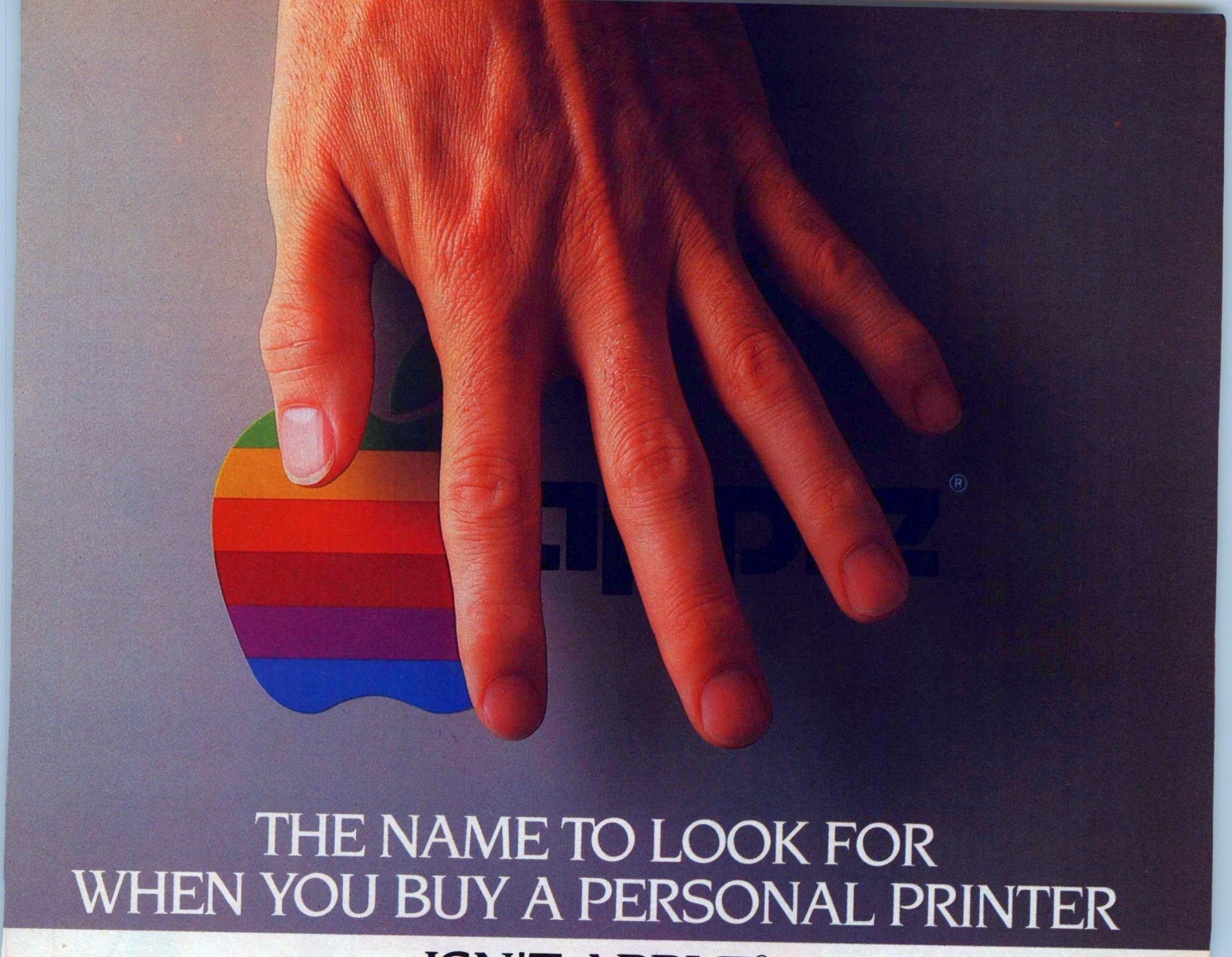

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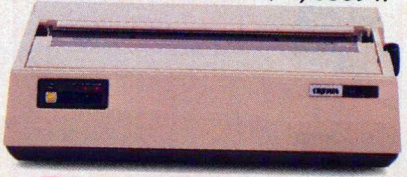

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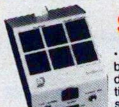

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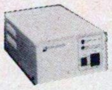

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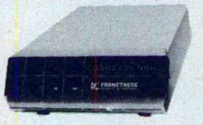

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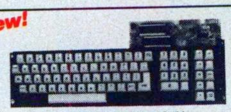

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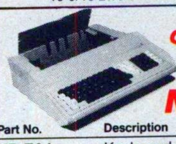

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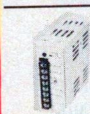
PS2922. . . . . $69.95



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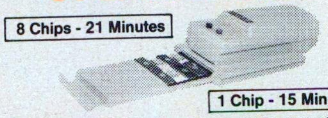

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JM16B	TMS2716 (3-V's)	-5V, +5V, +12V	Motorola, TI.	$14.95
JM32A	TMS2532	25V	Motorola, TI, Hitachi, OKI.	$14.95
JM32B	2732	25V	AMD, Fujitsu, NEC, Hitachi, Intel, Mitsubishi, National.	$14.95
JM32C	2732A	21V	Fujitsu, Intel.	$14.95
JM64A	MCM68764, MCM68L764	21V	Motorola.	$14.95
JM64B	2764	21V	Intel, Fairchild, OKI.	$14.95
JM64C	TMS2564	25V	TI.	$14.95

CIRCLE 279 ON READER SERVICE CARD

knuckle-whitening screens can cause premature brain damage. Give the half dozen or so screen designers credit—they have created the most difficult mazes modern gamers have ever encountered.

Heart-Pumping Action

The graphics are pretty straightforward. Your stick figure moves across nondescript blue bricks, away from the stick figures representing guards. Simple beeps and tones suffice for sound effects. As with the original, Championship Lode Runner emphasizes heart-pumping action rather than slick sound and graphics.

You will probably spend an hour conquering the first screen—even if you "cheat" by looking at the hint booklet. That's right. The screens are so difficult that Brøderbund includes a 52-page booklet detailing the exact tactics you need to beat the game.

Hard-Core Challenge

If you've never played Lode Runner, steer clear of this tougher big brother. Try the original first—it will save you a great deal of frustration. Veteran Lode Runner fans, rejoice. Championship Lode Runner challenges even the fastest, hard-core arcade gamers.

Russ Lockwood

Championship Lode Runner
Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170
List Price: $34.95
Requires: Apple II, II Plus, IIe, and IIc; 48K RAM; one disk drive; joystick

CIRCLE READER SERVICE NO. **511**

INTERACTIVE UNDERWATER SALVAGE

Infocom, the pioneer of interactive fiction, has brought out another gem of a text-only adventure game. Cutthroats places you on Hardscrabble Island, a dying little seaport off the beaten path. A motley group of shady characters needs your diving skills and knowledge of the area to mount an underwater expedition to salvage sunken treasure. You receive a cut of the take—if you can survive the perils of the deep and your partners.

Infocom games are a real joy to play, and Cutthroats is no exception. Its prose is truly descriptive and draws you slowly and subtly into the plot. As always with Infocom games, you control the action by using a sophisticated text-parser system that lets you type in complete English sentences. Cutthroats understands more than 800 words—enough to let you try anything your devious little mind desires.

Cutthroats places you on Hardscrabble Island, a dying little seaport off the beaten path.

The documentation is quite extensive, including a tide chart, an issue of *True Tales of Adventure* magazine (which doubles as an instruction manual), and an absolutely marvelous booklet entitled *Four Shipwrecks off Hardscrabble*

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Bruce Hicks and Sylvia Baron

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ART AND GRAPHICS ON THE APPLE® II/IIe
William H. DeWitt

This book/disk set lets you write your own graphics programs—games, art, business charts, and more—without the trouble of keying in hundreds of statements! The book is a complete guide to graphics programming that introduces "conceptual programing," a new technique for manipulating sophisticated graphics.
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WILEY PRESS COMPUTERBOOKS

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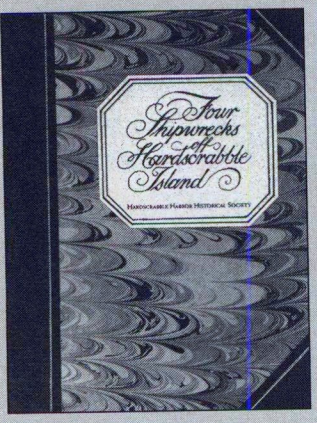
Island by the Hardscrabble Harbor Historical Society.

Actually, this supporting material is intended to help you defeat software pirates as much as it is to tickle your curiosity and provide



information and local color.

With four shipwrecks, you will need quite a few hours, if not weeks, to recover the treasure. Cutthroats allows you to save a game in progress. Of course, prudent adventurers do so *before* they attempt any particularly dangerous task. That way, you won't have to restart the adventure from scratch if you find

With four shipwrecks, you will need quite a few hours, if not weeks, to recover the treasure.

Davy Jones' Locker faster than expected. Especially prudent adventurers never dive below 200 feet with scuba gear.

Cutthroats is a good introductory-level adventure for adults, especially for those who want to dive for sunken treasure. It is another feather in Infocom's cap.

Russ Lockwood

Cutthroats
Infocom
55 Wheeler Street
Cambridge, MA 02138
(617) 576-3190
List Price: $39.95
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

CIRCLE READER SERVICE NO. **512**

SAVING THE WORLD FROM BOOK BURNING

Trillium Software, a division of Spinnaker Software, has licensed several of the biggest names in science-fiction writing for its line of interactive-fiction computer games. Pairing these authors' brilliant work with effective graphics yields the best adventure games to come around in a long time.

In Fahrenheit 451, Trillium's adventure based on the best-selling novel by Ray Bradbury, you take the role of Guy Montag, ex-fireman and fugitive from the law. For those who have never read the book, a totalitarian regime controls the masses through terror and high-powered audio and video reinforcement. In this world, the firemen start fires by burning books (and probably computer magazines too) to keep knowledge from the people. A growing Underground fights back by passing around the outlawed books. As Montag, alone in New York City, you must evade the firemen, contact the

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CIRCLE 203 ON READER SERVICE CARD

Underground, and devise a plan to save the world from book burning.

Most graphic adventure games, such as Death in the Caribbean and The Sands of Egypt, fill almost the entire screen with a picture, leaving little room for prose. Descriptions are always terse, and your commands consist of two words, a verb and direct object.

At the other end of the spectrum, Infocom's text-only games contain no graphics but are rich in description and use a sophisticated command structure.

Fahrenheit 451 sits right in the middle. The lower two-thirds of the screen contains the deathless prose of the master science-fiction writer. It wraps you in imagery, bringing the classic book alive on the screen and drawing you into the character and the plot. Best of all, the text-parser system, which translates your words into action, is as advanced as that of the Infocom games.

The top third of the screen displays colorful graphics. Although not as realistic as the illustrations in Death in the Caribbean and other graphics adventures, the pictures in Fahrenheit 451 contain enough detail to convey a sense of oppression.

When the subway doors open and a squad of firemen stands waiting to capture you, despair sets in.

Text and graphics together propel you into the story line. For example, when the subway doors open and a squad of firemen stands waiting to capture you, despair sets in. You want to quote the Bill of Rights or at least the part about life, liberty, and the pursuit of happiness. Do yourself a favor and save some mental turmoil—stay out of the subway.

The game comes on four disk sides, which you have to change from time to time. All input is through the keyboard. As with most adventure games, playing time is rather long. Plan on taking several hours, at the very least, to overthrow the regime. The documentation provides a list of acceptable words and a hint section.

I think Fahrenheit 451 is a real winner. Ray Bradbury's prose, effective graphics, and advanced command structure combine to form a truly excellent adventure game. I can hardly wait to play with the rest of the Trillium line—Arthur C. Clarke, Byron Preiss and Michael Reaves, Michael Crichton, Alan Dean Foster, Robert Heinlein, Roger Zelazny, and Philip Jose Farmer.

Russ Lockwood

Fahrenheit 451
Trillium Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1224
List Price: $32.95
Requires: Apple II Plus, IIe, or IIc; 48K RAM; one disk drive

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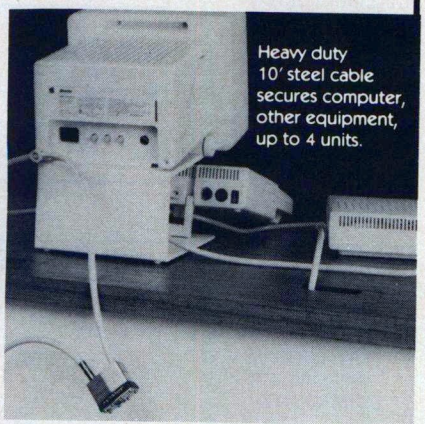

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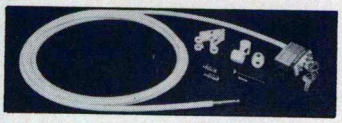

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Compuzzler puts a crossword puzzle on your monitor. It's the same type of puzzle you find in newspapers or books, but the program does offer a few features that you won't find in print versions.

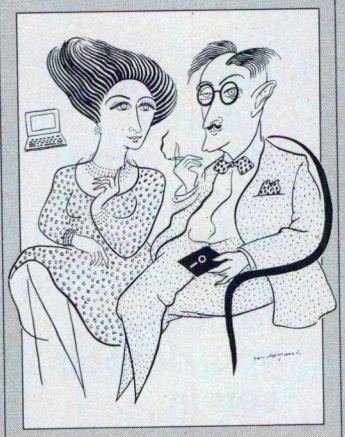
Typing Control-V lets you know if the words you've filled in are the correct answers to the clues and purges erroneous letters from the squares on the screen. Furthermore, you can press Control-S to sneak a look at the correct letter for the square your cursor is on.

You move the arrow-shaped cursor around the grid with the cursor-control keys. Clues are displayed in pairs, one across and one down, underneath the crossword grid, and you type in the answer from the keyboard. You have the option of replacing the grid with a list of clues, which comes in handy for picking out and answering the easy ones first before tackling the hard ones.

The program does offer a few features that you won't find in print versions.

Various commands allow you to center the grid, change the font of the letters, change the pattern of the puzzle, toggle colors on and off, and print out the puzzle. Compuzzler includes 70 puzzles, and you can save work in progress.

Compuzzler also contains a competitive game for two players or teams. In essence, each side receives points for correct words or



letters. As with Scrabble, you must use letters on the grid as part of your word, and you can challenge an opponent's answer. Success earns you points, but failure subtracts points from your score. A timer is an available option.

Compuzzler is an excellent crossword-puzzle program. It is easy to use and easy to learn, and it provides hours of challenging fun for crossword-puzzle enthusiasts. My only question is why anyone would purchase a computer program when you can get pretty much the same thing much more cheaply in a paperback book.

Russ Lockwood

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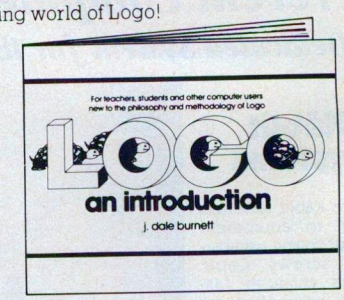

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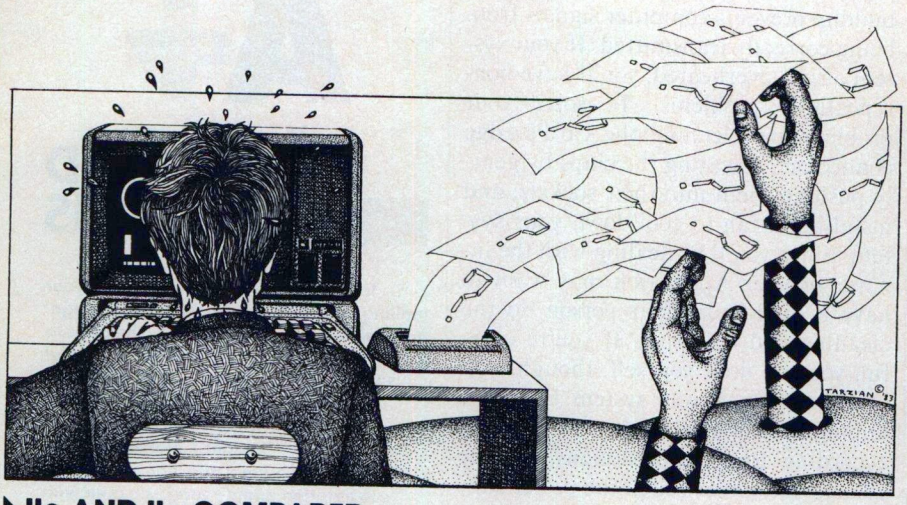

▸ IIe AND IIc COMPARED

Q. *You recently published a list of software that runs on the Apple IIc computer. I have an Apple IIe. Am I already obsolete?*

A. By no means. The Apple IIe and IIc computers are different, but Apple Computer has maintained a high degree of compatibility. For example, the IIc does not have slots for plug-in circuit boards, but the usual PR# commands work as if you had circuit boards in slots (and PR#7 boots the second disk drive on a IIc). Some of the problems with commercial software are due to improper programming. If a program bypasses Apple's "official" way of doing things, it may not work on both computers. Let's look at some of the most important differences between the two computers:

Screen codes—Some of the character-display codes have been changed on the IIc. It cannot display uppercase flashing letters in the active 80-column mode.

MouseText—The strange lettering you see on the IIc when the program thinks it's displaying flashing uppercase 80-column text is called MouseText. These graphic characters—pieces of borders, arrows, and other icons—are not available on the IIe. In addition to the change in the character set, the IIc also has the mouse ROM code that allows programs to read the mouse's status easily. On the Apple IIe, you'll get the ROM with the mouse when you buy the AppleMouse II package, but you won't get the MouseText characters.

Serial Ports—The IIc also contains a Super Serial Card ROM chip. Er . . . almost. There are some differences between the Super Serial Card for the II, II Plus, and IIe and built-in IIc ROM. Here, the tables are turned on IIc owners, because many programs that support the Super Serial Card on the IIe do not run properly on the IIc. Be especially careful with communications and graphics-dump programs.

System ROM—The IIc's system ROM is also different. These changes, among other things, simplify Applesoft program editing, but they rarely affect application programs.

Most of the IIc's other changes are physical. The disk drive uses a different mechanism, and some copy-protected software does not run (IIe owners will have the same problems with the Apple Duodisk).

The printer and modem ports have round, DIN connectors, rather than the standard serial connectors. You must purchase special cables for the IIc—ditto for the disk drive. The mouse/joystick connector has been combined, so you have to unplug the mouse to connect a joystick. Further, the connector is a DB 9-style connector such as that found on the back of the Apple IIe, rather than the 16-pin connector inside the IIe. Few manufacturers other than Apple have adapted their joysticks to fit this port. People who own joysticks or other game-port peripherals that work with the old-style plug must purchase an adapter to connect the device.

The most severe problem for many IIc users is the lack of a Z80/CP/M card option. Rumor has it that a manufacturer is working on an option that will allow for CP/M compatibility through the disk-drive port, but, as of this writing, it's only a rumor. The lack of a Z80 card will be a handicap for people who use CP/M software—WordStar, dBASE II, SuperCalc, Perfect Writer, and so on—at their office and have a IIc at home. Some commercial programs read and reformat the data files from Apple CP/M disks to Apple DOS 3.3, but they are no substitute for the real things.

If you already own an Apple II, II Plus, or IIe and want to use your peripherals with a IIc, you may have to purchase quite a bit of new equipment or adapters. Your Epson parallel printer won't work without a serial/parallel converter, you'll need a game-port adapter or new joysticks, you can't move the second Disk II drive over to the IIc, and so on. The bulk of your old DOS 3.3 software, however, will work with no more than the usual Caps-Lock-down, don't-use-the-delete-key, and don't-use-the-up-or-down-arrow-key problems. Your new ProDOS software—the new double-high-resolution graphics software and most programs marked IIc—will run on an Apple IIe with an Extended 80-Column Card. For a more thorough discussion of double-hi-res graphics, see the December 1984 and January 1985 issues of *A+*.

▸ INDISPOSED COMPUTER

Q. *I have an Apple IIe with a Microsoft Premium Z80 IIe Card and use my system primarily for word processing. After one or two hours, random characters appear on the screen, and the system fails. I have to reboot and lose my document. Help!*

A. Unless you are systematically doing something to cause the system to fail, your problem sounds like overheating. If you have many interface cards, you'll find that the interior of the Apple system box becomes quite hot. The heat can cause RAM to deteriorate and the system to fail. You should purchase a

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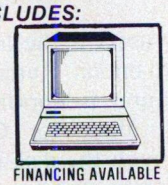

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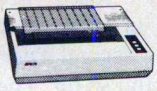

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fan to cool the system. If this step doesn't solve the problem, read on . . .

Another reason for sporadic problems is oxide buildup on the interface card and/or chips. After many hours of use, the edge connectors on your interface cards and the pin tips of the computer chips can oxidize. The oxide buildup prevents computer signals from being correctly transmitted. If your system also is overheated, you'll have nonrepeatable problems. To solve your problem, try cleaning the card's edge connectors, reseating the chips by gently pushing them into their sockets, and installing a fan to cool down your system. Since you'll be dealing with the innards of your Apple, you may want to have a qualified repair person do the cleaning and reseating. If you're careful, you can do it yourself, though.

First, turn off your system, but don't unplug it. Remove the top of the case according to the instructions in your owners' manuals. Touch the power supply to ground yourself. Static can kill a chip, so be especially careful not to skip this step. Your system is plugged into a three-pronged, grounded outlet, isn't it? If your system is normally in a room with a rug, you may want to move it into a room with a wood or tile floor. (Plug it back into a grounded outlet if you do.)

To clean the edge connectors, you'll need rubbing alcohol, a lint-free swab or cloth, and a pink eraser. Remove an interface card from one of the slots—hold it by the edges to lessen the possibility of damage. Gently rub the eraser over the gold-covered connectors that fit into the slot. Repeat this process for all the cards, including the card in the auxiliary slot, if you have a IIe.

To reseat the chips, be sure you are grounded; then gently press on each of the socketed chips on the main Apple circuit board. Don't press hard, or you'll risk bending the circuit board and breaking a circuit. The idea is to slightly dislodge the chip and shake loose any oxide buildup.

If the problem persists even with the fan and after the cleaning, run—don't walk—to your dealer for a thorough checkup. If the problem reappears after minimal use, say a month or two, get thee to a dealer: You do have a system problem. You shouldn't need to clean the connectors or reseat the chips more than once every two years or so. +

Please send your questions and problems to Rescue Squad, A+, 11 Davis Drive, Belmont, CA 94002.

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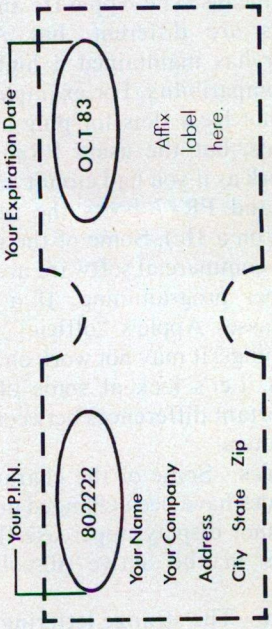

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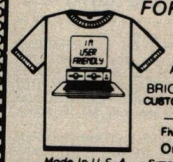

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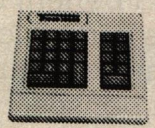

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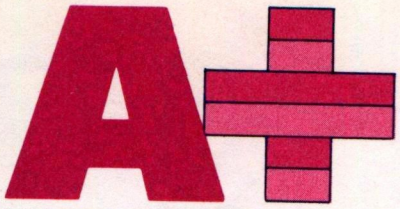

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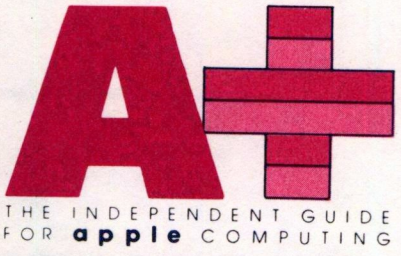

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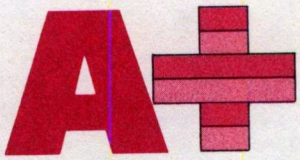

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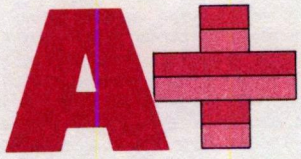

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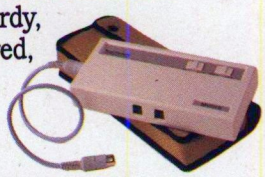
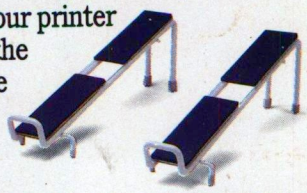
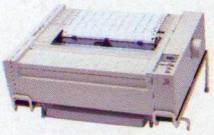


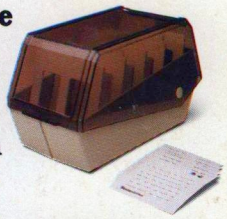
The **Control Center,** styled to fit underneath the external disk drive, provides fingertip control over your whole system. There's a master switch to power the whole system on and off, and separate switches for a printer, modem and one auxiliary device. It also protects your whole system from power surges, line noise and static shocks.

The **Universal Printer Stand,** for the Apple® Imagewriter,™ also fits most other dot matrix printers. It raises your printer 1½″ from the desk at the front and 4½″ at the back, an angle that allows you to monitor your printer's performance more easily. By raising your printer a few inches from the desk, the Universal Printer Stand solves the problem of where to store your paper. Several hundred sheets are accommodated neatly underneath.





The **Disk Case** provides safe storage for 36 Macintosh disks. And it comes with a handy packet of spare disk labels.



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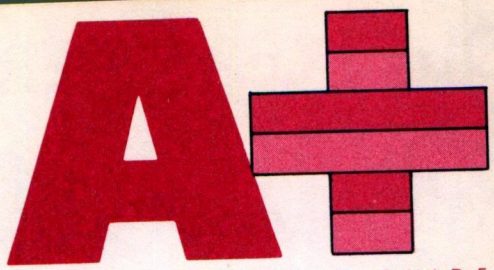

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